AWOS 3000

Automated Weather Observing System

Oil Rig Platform
Site Preparation Manual

☒	**FAA APPROVED** ECP180 — 2011 May 5
☐	**NOT FAA APPROVED**

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Rev. A

allweatherinc

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Disclaimer
The information and specifications described in this manual are subject to change without notice.

Latest Manual Version
For the latest version of this manual, see the *Product Manuals* page under *Reference* on our web site at www.allweatherinc.com/.

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Contact Customer Service

- **Phone** support is available from 8:00am - 4:30pm PST, Monday through Friday. Call 916-928-1000 and ask for "Service."
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- **E-mail** your support request to support@allweatherinc.com

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Chapter 1

General

1.1 Introduction

This manual is designed to assist a contractor retained to prepare a site for an Automated Weather Observing System (AWOS). Site preparation includes not only the actual physical work, but permits, licenses, and coordination with oil rig and shipping authorities. This document provides details for mounting pipes, towers, conduit and surge protection.

The actual installation of sensors and equipment described in the ***AWOS 3000 Installation and Checkout Manual*** (3000-017) will be performed by or under the direction of All Weather, Inc.

There are several different AWOS 3000 systems that differ in the sensors that are installed. There is a Site Preparation Manual is specific to each AWOS 3000 system category, so you will need to refer to the correct Site Preparation manual for the system category you are installing. The different AWOS system categories are listed below.

AWOS SYSTEM CATEGORIES							
AWOS A	AWOS I	AWOS II AWOS A-V	AWOS III AWOS III P	AWOS III T AWOS III P/T	AWOS III P/T/Z	PLATFORM	ELEVATED

All drawing references, unless otherwise noted, refer to the drawings at the back of this manual.

1.2 Definitions

As used herein, the term contractor refers to the site preparation contractor who has been assigned responsibility for all site survey and preparation tasks.

The term manufacturer refers to All Weather Inc., who will provide and install the AWOS hardware.

1.3 Steps Before Site Preparation Begins

The drawings are a guide for generic oil rig mounting of the AWOS sensors. Every oil rig installation is unique, and the oil rig site must meet the requirements of ***FAA Order #6560.20, Appendix 1, Section 4***. Ideally, the sensors should each be separated by 10 ft, but if there is insufficient space on the oil rig, contact AWI for further assistance.

A site survey is highly recommended before the sensor locations are selected. In particular, the site needs to accommodate the needs of the following sensors.

- Model 2020 Vane and Model 2030 Anemometer — Large obstructions within 300 m of the sensor dictate the minimum height for the sensor. Refer to the ***Model 2020 Micro Response Vane User's Manual*** and to the ***Model 2030 Micro Response Anemometer User's Manual*** for more information.

- Model 2040 Ultrasonic Wind Sensor — Large obstructions within 300 m of the sensor dictate the minimum height for the sensor. Avoid locations that may be in the plane of a radar scanner, and do not place this sensor in the line of sight to a satellite radio transmitting antenna. The sensor should be at least 1 m away from VHF transmitters. Refer to the ***Model 2040 Ultrasonic Wind Sensor User's Manual*** for more information.

- Model 8364-E Visibility Sensor — Locate the sensor as far as practical from strobe lights and other modulated light sources. Do not locate it in an area that is subject to localized obstructions to vision (e.g., smoke, dust, etc.). At the same time, it should not be so isolated that it cannot detect more widespread obstructions when they affect visibility in the area of concern. Refer to the ***Model 8364-E Forward Scatter Visibility Sensor User's Manual*** for more information.

- Model 6490 Present Weather Sensor — In general, the sensor should be located where the sensor site will be exposed to the same environment as the area around it. Ideally, the area around the site should be free of obstructions. Refer to the ***Model 6490 Present Weather Sensor User's Manual*** for more information.

- Model 6500 Thunderstorm/Lightning Detector — The antenna is sensitive to static charges, so care must be taken to ensure that the antenna and ground plane are as far removed as possible from composite materials (e.g., plastic materials or fiberglass), since these materials have a tendency to build up static charge. The sensor should be mounted as far as possible from devices that emit high levels of radio frequency interference (RFI) and electromagnetic interference (EMI), such as VHF and UHF radios, RF modems, fluorescent lamps, and ballasts, air conditioner and heater blowers, as well as any current-carrying cables. Refer to the ***Model 6500 Thunderstorm/Lightning Detector User's Manual*** for more information.

The proposed locations of the tower and sensors also take into account the requirements of FCM-S4, ***Federal Standard for Siting Meteorological Sensors at Airports***, and ICAO Annex 14, ***Aerodromes***, so that the tower and sensor locations conform to operational, regulatory, and safety requirements. Some guidelines for locating sensors are included in the User's Manuals for the individual sensors, where appropriate, but these are only technical guidelines for the individual sensors and do not take into consideration the broader guidelines for a complete system.

Send FAA Form 7460-1, ***Notice of Proposed Construction or Alteration***, to the FAA Air Traffic regional office located in the area you plan to build the tower or site the sensors at least

- 30 days prior to the date you propose to begin construction, or
- 30 days before you plan to file an application for a construction permit,

whichever is earlier.

Site preparation activities may not commence until a ***Notice to Proceed*** is received and all permits and licenses required by local authorities for the work have been procured.

1.4 Requirements

Site preparation consists of all functional responsibilities from coordination with airport authorities to the installation of the wind tower, sensor mounts, conduits, and other physical preparations for the AWOS.

Drawing 3000-O-007 provides the weights of the AWOS components.

NOTE: NATIONAL AND LOCAL CODES SHALL HAVE PRECEDENCE OVER ANY INSTRUCTION OR DETAIL IN THIS DOCUMENT.

1.5 Coordination with Building Authorities

The Site Superintendent or designate will furnish the contractor with information relative to the facility. As available, this information will include equipment layout drawings, existing termination points for commercial power and communications systems, and plot plans delineating proposed construction. Specific manufacturer's data is included in this document.

Coordination with the Site Superintendent or designate will address locations of power and communication termination for the site. Coordination with the Site Superintendent or designate should also include site access procedures and site contact information for use during site preparation and system installation.

Chapter 2

Site Preparation

Once a ***Notice to Proceed*** is received and all permits and licenses required for the work have been procured, the contractor shall perform the following site preparation work.

1. Prepare the tower section, mounting pipes, sensor mounts, etc.
2. Install the tower base and tower section.
3. If applicable, provide and install a data cable from the tower section to the central data processing computer.
4. Provide and install antenna masts.
5. Provide and install a power run and antenna cable to the AWOS sensor site.

The tower section, VHF radio mast, and optional tower-mounted UHF radio masts are either provided by All Weather, Inc. or are procured by the oil rig owner. All other materials required to perform the site preparation instructions listed are provided by the site preparation contractor. The Material List in Chapter 8 describes the materials required to do the site preparation work.

Chapter 3

Elevation and Wind Direction Benchmarks

Solar noon, a compass, or the North Star can be used to identify a North-South reference line.

A wind direction reference point must be established in one of the four cardinal directions to align the wind direction sensor. It is simplest to use True North as the reference, though at some installations this may not be feasible. The reference point should be established relative to the center of the AWOS tower. Any of the other three directions can be determined once True North has been established.

True North uses the earth's geographic meridians, while Magnetic North is the North indicated by a magnetic compass. Depending on a site's location, Magnetic North is to either the East or West of True North (with the exception of sites along the "line of zero declination", where Magnetic and True North are the same). This difference, measured in degrees, between True North and Magnetic North is known as the **magnetic declination**. For sites west of the line of zero declination (which runs roughly from west of Hudson Bay, down along Lake Michigan to the Gulf Coast in western Florida), the magnetic declination is "Easterly". For sites east of the zero line, the declination is "Westerly". The magnetic declination for a particular site can be obtained from the site survey data form or from an online magnetic declination calculator.

In addition to determining a wind direction reference point, the barometric pressure sensor site elevation needs to be determined so that it can be factored into the altimeter calculations. Add the measured or estimated difference between the elevation of the barometric pressure sensor site and the published deck elevation for the corresponding deck to determine the barometric pressure sensor site elevation.

Chapter 4

Hardware Installation

The hardware installation includes the construction of all sensor mounts, placement of conduit, erection of the tower, connection of the AC power distribution system, tower lights, and lightning rod, and, for radio data link installations, installation of the antenna mast and antenna.

It is very important to know what category of AWOS is being installed before starting. Refer to the following table to identify the relevant sensors and site preparation associated with the AWOS 3000 system category being installed.

AWOS SYSTEM CATEGORY	SENSORS	SITE PREPARATION
AWOS A	Dual Digital Barometer	Sensor Mounts Tower Bottom Section
AWOS I	Dual Digital Barometer Wind (speed, direction, gusts) Temperature/Dewpoint	Sensor Mounts Tower Bottom Section
AWOS II AWOS A-V	Dual Digital Barometer Wind (speed, direction, gusts) Temperature/Dewpoint Visibility	Sensor Mounts Tower Bottom Section Visibility Sensor Pad
AWOS III	Dual Digital Barometer Wind (speed, direction, gusts) Temperature/Dewpoint Visibility Ceilometer	Sensor Mounts Tower Bottom Section Visibility Sensor Pad Ceilometer Pad
AWOS III P	Dual Digital Barometer Wind (speed, direction, gusts) Temperature/Dewpoint Visibility Ceilometer Precipitation Identification	

AWOS SYSTEM CATEGORY	SENSORS	SITE PREPARATION
AWOS III T	Dual Digital Barometer Wind (speed, direction, gusts) Temperature/Dewpoint Visibility Ceilometer Thunderstorm/Lightning	Sensor Mounts Tower Bottom Section Visibility Sensor Pad Ceilometer Pad Thunderstorm/Lightning Sensor Pad
AWOS III P/T	Dual Digital Barometer Wind (speed, direction, gusts) Temperature/Dewpoint Visibility Ceilometer Precipitation Identification Thunderstorm/Lightning	
AWOS III P/T/Z	Dual Digital Barometer Wind (speed, direction, gusts) Temperature/Dewpoint Visibility Ceilometer Precipitation Identification Thunderstorm/Lightning Freezing Rain	Sensor Mounts Tower Bottom Section Visibility Sensor Pad Ceilometer Pad Thunderstorm/Lightning Sensor Pad Freezing Rain Sensor Pad

4.1 Sensor Mounting Kits

4.1.1 Twenty-Foot Tower

Refer to drawing M408527-00-010 for details on installing the oil rig platform tower base. Secure the mounting bolts to the oil rig platform structural supports.

4.1.2 Sensor Pads

Refer to drawing M105619-00-012 for details on installing the oil rig platform sensor mounts for the sensor poles. Secure the mounting bolts to the oil rig platform structural supports.

4.2 Conduit and Lightning Protection

All sensor locations will require signal, power, and lightning protection cables.

Install the power cables and conduit that supply power to the site to the equipment mounted on the frame at the tower location (see Section 4.3). Place power conduits and attach junction boxes or 90° condulets at the sensor mounts. The ends at the tower connect to the circuit breaker cabinet. The junction boxes or condulets at the sensor pads are supported by rigid conduit and straps attached to the mount. Install the signal conduits in the same manner, securing the ends at

the tower to a junction box on the frame. If applicable (land line sites), install the incoming communications conduit and cable from the central data processing computer to a junction box next to the tower (see Section 4.3.2).

Place electrical wire of an appropriate size and type in the electrical conduits running from the circuit breaker panel to junction boxes at the sensor pads.

Place 3/16" pull ropes in all signal conduits running between the tower and the sensor pads.

4.3 Utility Services

4.3.1 Input Power

The contractor shall provide and install the required AC input power (see the ***Power Requirements*** **sheet in** drawing 3000-O-007) for use by the AWOS, connecting to an existing power source as determined during the site survey.

Transformers, main disconnect boxes etc., if required, shall be provided in accordance with ANSI-C57, 12.25-1981.

4.3.2 Communications

At rooftop locations designated as “land line” (as opposed to UHF/VHF radio data link), provide and install a communications data cable as specified in the materials list from a junction box next to the tower to the AWOS central data processing computer. The maximum length is 4,000 feet. The cable should be either in a conduit for its full length, or of a type suitable for direct burial.

4.4 Tower Installation

As far as practical, do not install towers near the oil rig platform power lines. All towers should be installed by experienced and trained personnel. All installations must be grounded per local and national codes.

Installation of the tower assumes completion of the oil rig platform tower base.

4.4.1 UHF/VHF Data Link Antenna Mast (Data Link Installations Only)

(See the ***Radio Data Link Antenna Mast*** drawing). Bend a piece of ¾" conduit (rigid or EMT) as shown on the drawing. Locate the antenna mast on the side of the tower nearest the Central Station Equipment. No obstructions may exist between the antenna on the tower and the antenna located near the Central Station Equipment. A clear line-of-sight path is required. Use the M488292-00 antenna mount to attach the antenna to the mast instead of the bracket provided with the antenna.

The All Weather, Inc. engineer will install the antenna and the antenna cable.

4.5 Central Data Platform (CDP)

Place the CDP at an indoor location specified by the airport authority. The indoor space must accommodate the 11RU equipment rack, which is 22" × 20.5" × 20", and weights about 150 pounds, including the UPS power supply. The location should take into account the need to access the front and both sides of the rack.

4.5.1 Equipment

The CDP is mounted in an industrial-grade 11RU rack along with a UPS. The rack also houses the VHF ground-to-air radio and the CDP options.

4.5.2 Temperature Requirements

The indoor equipment must be located in a conditioned space where the temperature is maintained between 40°F and 105°F, with a relative humidity between 5% and 90%.

4.5.3 Power Requirements

The indoor equipment must be located within three feet of an outlet with 120 V AC, 60 Hz (± 5%). The indoor equipment requires 500 V·A and should be on a dedicated 15 A circuit.

4.5.4 Telephone Requirements

The indoor equipment must be located with access to a telephone line terminated with an RJ-11 connector. The phone line is dedicated to the AWOS modem and must not be shared with other telephones, FAX machines, etc.

4.5.5 VHF Voice Radio Antenna Mast

The VHF radio antenna (supplied and installed by All Weather, Inc.) will be located outdoors and away from obstructions. The antenna should not be mounted within 100' of other radio transmitters, such as a UNICOM transmitter. If such a location is not available for the radio mast, contact All Weather Inc. for further instructions. See the ***Central Station Antenna Mast Options*** drawing for more information about antenna mounting options. The mast should be at least 5' in length. Install the desired antenna mount and mast.

The VHF radio antenna and cable will be installed by the All Weather Inc. engineer.

4.5.6 UHF/VHF Data Link Radio Antenna Mast (Data Link Installations Only)

The UHF/VHF Data Link Radio Antenna (supplied by All Weather Inc.) must be located outdoors and away from obstructions. See the ***Central Station Antenna Mast Options*** drawing for more information about antenna mounting options. The antenna mast should be at least 5' in length. This antenna should be mounted at least 20' away from the VHF Voice Radio Antenna. Install the desired antenna mount and mast.

The All Weather, Inc. engineer will install the antenna.

4.5.7 AWOS Net (optional)

Some AWOS systems use the optional AWOS Net. The AWOS Net can be used as a Web server and/or to support a remote display. There are three types of AWOS Net, each based on the communication protocol used by the AWOS Net.

4.5.7.1 RS-232 AWOS Net

No additional site preparation work is needed for this AWOS Net type.

4.5.7.2 RS-485 AWOS Net

No additional site preparation work is needed for this AWOS Net type.

4.5.7.3 UHF Radio AWOS Net

The UHF radio AWOS Net is used when the AWOS Net cannot be hard-wired to the CDP or is more than 4000 feet from the CDP. The CDP must be communicating with the DCP using a UHF radio for this AWOS Net option to be used.

An antenna mount like the VHF antenna mount described in Section 4.5.5 must be installed on the roof of the building or some other appropriate location within the line of sight to the CDP UHF radio antenna. The AWOS Net device uses the same frequency as the DCP–CDP UHF radio link

Install the antenna mount and mast (see the ***Central Station Antenna Mast Options*** drawing). The mast should be at least 5' in length.

The UHF radio antenna and cable will be installed by the All Weather Inc. engineer.

Chapter 5

Site Cleanup and Restoration

Site cleanup and restoration shall include the following:

1. Removal of all contractor-furnished material, tools and equipment that will not become oil rig platform property upon acceptance of site work.

2. Removal of all trash, litter, packing, and excess material from the site, to be disposed of by the contractor.

3. Restoration of portions of the site inadvertently damaged by the contractor so as to be returned to the same condition as existed before beginning work at the site.

4. Upon completion of the site cleanup and restoration, the contractor shall obtain a written release from the property owner attesting that the sites have been restored to a satisfactory condition.

Chapter 6

Tests and Inspections

The contractor is responsible for securing all necessary construction and electrical permits, waivers, etc., before commencing work. After completion of the work, the contractor shall demonstrate acceptable work to the oil rig platform owner, manager, or other authority as appropriate. It is the responsibility of the contractor that all aspects of this project that are under his control are in conformance with appropriate building and electrical codes. Nothing in this document shall preclude any requirement for code conformance.

As early as possible, the contractor shall notify All Weather Inc. of the date when the site will be ready for installation of the AWOS system. The contractor is required to provide digital photographs showing that all required work has been completed and that the equipment is at the site. All Weather, Inc. will not schedule an FSE (Field Service Engineer) for installation until these photographs have been submitted and reviewed to ensure the site is ready for installation. The contractor may also be required to provide a signed document attesting that all required work has been completed and that all equipment and material have been installed in accordance with the appropriate manuals and specifications, applicable building codes, and accepted engineering practices; that circuit breakers are available in the disconnect box; that pull ropes are in the signal conduits; that all towers and mounting pipes are leveled properly; and that the communication line to the central station is in place.

To assure that the site is completely ready for delivery and installation of AWOS equipment, the oil rig platform operator may invite the AWOS equipment vendor to participate in the acceptance inspection. The contractor shall correct all deficiencies detected during the inspection prior to the acceptance of site work. Facilities that give evidence of substandard contractor performance will not be accepted by the oil rig platform operator.

When All Weather Inc. is notified of completion as described above, if any part of the site preparation described in this document has not been accomplished and extra costs are incurred as a result of such deficiency, the contractor may be required to reimburse All Weather Inc. for such actual excess costs.

Chapter 7

Coordination

The contractor shall perform all work in a manner that does not conflict with or adversely affect the air traffic operational environment. In the event of any actual or potential conflict, air traffic activities shall have priority over all contractor activities. The contractor shall provide services in a manner and at such times as will not disrupt the normal flow of air traffic.

Chapter 8

Materials List

All Weather Inc. shall supply the tower and the tower light fixture. The site preparation contractor shall provide the remaining materials as listed in the ***Material List*** in the drawing corresponding to the AWOS system category being installed. In addition to these materials, the site preparation contractor shall also provide the additional materials and bracing specified by the qualified civil engineer retained to verify the structural integrity of the building/oil platform to accommodate mounting the AWOS system.

Chapter 9

Antenna Mounting Materials List

The following table lists the material requirements for antennas installed as part of the Central Station equipment.

All sites require one antenna at the Central Station for VHF radio voice output. Sites using UHF data links require two antennas at the Central Station, along with mounting hardware and masts. Select one mounting option from the table for each antenna. Figures showing antenna assembly procedures and the various mounting options are included at the back of the ***Drawings*** section of this manual.

Antennas and Antenna Mounting Materials List		
Quantity	Description	Part No. (or equiv.)
1* or 2** or more*** * (voice only) ** (voice and data link) ***(one more for each UHF Radio AWOS Net)	Antenna mast, 1-1/4" x 5' or 1-1/4" x 10'	Radio Shack 15-842 (5') Radio Shack 15-843 (10') GC Electronics 32-9013 (5') GC Electronics 32-9014 (10')
Select 1 mounting option for each antenna	Base and roof mount	Radio Shack 15-889
	Vent pipe mount	Radio Shack 15-893 GC Electronics 8802
	"12"" wall mounts"	Radio Shack 15-885 GC Electronics 8312
	"4"" wall mounts"	Radio Shack 15-883 GC Electronics 8304
	Eaves mount	Radio Shack 15-891
	3' tripod mount	Radio Shack 15-516 GC Electronics 9160

Antenna and antenna cables supplied by All Weather Inc.

Chapter 10

Drawings

The following pages contain drawings detailing site preparation activities.

3000-O-007	Site Preparation Oil Rig Platform
M408527-00-010	8509 Tower Flat Roof Mount Base
M105619-00-012	Sensor Foundation Pad Adapter
—	UHF/VHF Antenna Assembly

REVISIONS			DWG NO. 3000-0-007	
REV	ECO	DESCRIPTION	DATE	APPROVED
A	1535	INITIAL RELEASE	07/01/10	BRG

NOTES: UNLESS OTHERWISE SPECIFIED;

PLATFORM OPERATOR IS RESPONSIBLE TO SUPPLY ITEMS:

(1) CONDUIT OUTLET BODIES. 3/4" HOLES. APPLETON C75-M WITH COVER K75-CM AND RUBBER GASKET GK75-N OR EQUIVALENT. 8 REQUIRED.

(2) WEATHER TIGHT DEVICE BOX. FIVE 3/4" HOLES MIN. APPLETON WST275 AND COVER WCB24 OR EQUIVALENT. 3 REQUIRED.

(3) GFCI RECEPTACLE PLATE WITH GASKET AND COVER. HUBBELL WPFS26 OR EQUIV. AND GFCI DUPLEX RECEPTACLE, 15 AMP, 125V HUBBELL GF-5262 OR EQUIV. 1 REQUIRED.

(4) WEATHER TIGHT DEVICE BOX. 3/4" HOLE. APPLETON FD-1-75 OR EQUIV. 1 REQUIRED.

△1 INSTALL 3-CONDUCTOR CLX 16 AWG MINIMUM AC POWER WIRES OR EQUIVALENT FROM POWER DISTRIBUTION BOX TO SENSOR AC POWER JUNCTION BOXES AND DCP POWER JUNCTION BOX. (5 PLACES)

△2 INSTALL 3-CONDUCTOR WITH SHIELD CLX 20 AWG MINIMUM SIGNAL WIRES OR EQUIVALENT FROM SIGNAL JUNCTION BOX TO SENSOR SIGNAL JUNCTION BOXES AND FROM TOWER JUNCTION BOX TO CDP LOCATION.

△3 FOR ULTRASONIC WIND SENSOR:
INSTALL CLX CABLE WITH 5 TWISTED PAIRS, EACH WITH DRAIN WIRE, FROM DCP JUNCTION BOX TO WIND SENSOR JUNCTION BOX AT WIND SENSOR LOCATION.
WIRE GAGE WILL BE DEPENDENT ON RUN LENGTH:
4 TWISTED PAIRS - 18 AWG FOR ALL RUN LENGTHS AND
1 TWISTED PAIR WITH WIRE SIZE AS LISTED:

MAX RUN LENGTH	REQUIRED WIRE SIZE
50 FT	20 AWG
80 FT	18 AWG
130 FT	16 AWG
500 FT	10 AWG
830 FT	8 AWG

FOR LONG RUNS AND WHERE 120 V AC IS AVAILABLE AT THE WIND SENSOR LOCATION, A TRANSFORMER MAY BE LOCATED IN THE JUNCTION BOX AT THE WIND SENSOR LOCATION AND THE LARGER WIRE SIZE WILL NOT BE REQUIRED.

4. WEIGHT OF AWOS COMPONENTS

• 5' Tower	35 Pounds
• M408527-00 Tower, Roof Mount	24
• 2020 Wind Direction Sensor	2.5
• 2030 Wind Speed Sensor	2.5
• 2040 Ultrasonic Wind Sensor	4
• 8190 Motor Aspirated Radiation Shield with R/H Temp Sensor	11
• 8364 Visibility Sensor	74
• 8339 Cloud Height Sensor	61
• 6500 Lightning Sensor	40
• 6490 Pres Wx Sensor	31
• 6495 Freezing Rain Sensor	16
• 1190 Data Collection Platform with BP Sensor	22
• 2020/2030 Crossarm	8
• 6021-A Rain Gauge	8
• Rain Gauge Crossarm	5
• Wind Sensor Mount	15
• Visibility Sensor Mount	50
• Cloud Height Sensor Mount	50
• Lightning Sensor Mount	50
• Freezing Rain Sensor Mount	50
• M105619-00 Sensor Pole Mtg Base (4X)	204
• Misc Cable and Mounting Hardware	40
• TOTAL ESTIMATE	803 pounds

Contact AWI for assistance in defining routing and mounting grounding, power, and data cables. All cables used in maritime environments must be metal-clad armored cables. The weight of these cables is not included in the estimates.

△5 ALL WEATHER INC. SUPPLIED EQUIPMENT.

△6 THE PLATFORM OPERATOR IS RESPONSIBLE TO TERMINATE THE SENSOR GROUND CONNECTIONS TO THE FLOOR GRATE.

△7 ATTACH GROUND LUG UNDER BOLT ITEM 4 ON TOWER LEG CLOSEST TO GROUND CABLE.

△8 TOWER BASE MAY BE ROTATED TO ALIGN J-BOLTS WITH FLOOR GRATE OPENINGS. A MINIMUM OF 6 J-BOLTS MUST BE USED IN THE BASE, 2 PER LEG

9. APPLY LOCTITE SILVER GRADE ANTI-SEIZE COMPOUND (M401065-00) OR EQUIVALENT TO ALL THREADED FASTENERS PRIOR TO ASSEMBLY.

A	A	A	A	A	A	A	A	A	A	REV	REV STATUS OF SHEETS
10	9	8	7	6	5	4	3	2	1	SHEET	

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
TOLERANCES
XX=±.010 ANGLES ±1/2°
XXX=±.005 FRACTIONS=±.02
DO NOT SCALE DRAWING

MATL: SEE MATERIAL LIST

FINISH: N/A

TREATMENT

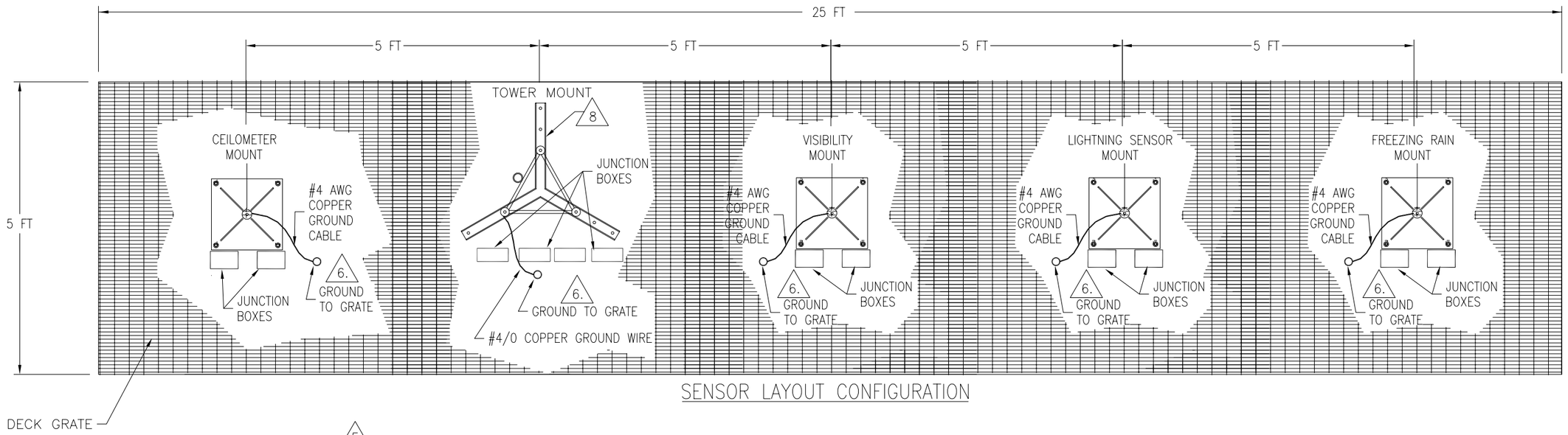
DRAWN BY: GALARPE	07/01/10	
REVISED BY:		
CHECKED BY: –	–	
DESIGN ENGINEER: –	–	
PROJECT MANAGER: –	–	
APPROVALS	DATE	

TITLE: AWOS SITE PREP DWG, OIL RIG PLATFORM

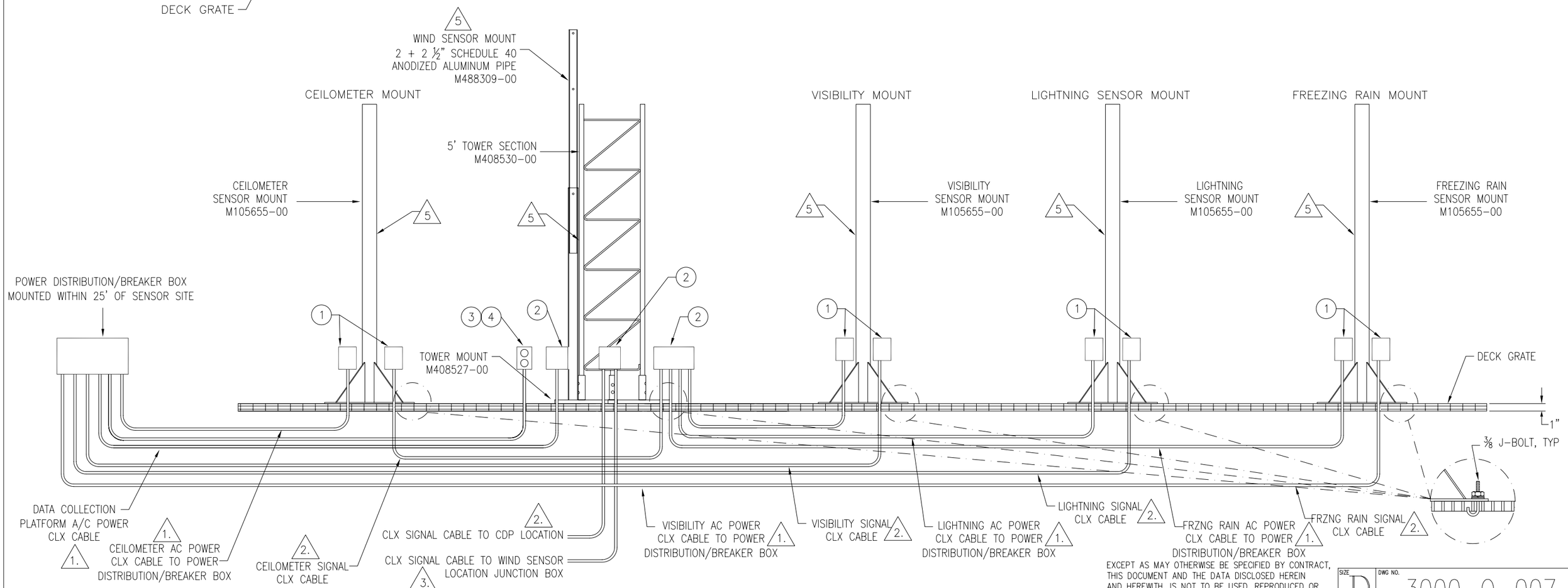
allweatherinc

SIZE D | DWG NO. 3000-0-007

SCALE NONE | RELEASE DATE | SHEET 1 OF 10



SENSOR LAYOUT CONFIGURATION



POWER AND SIGNAL INTERCONNECTION

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D	3000-0-007	
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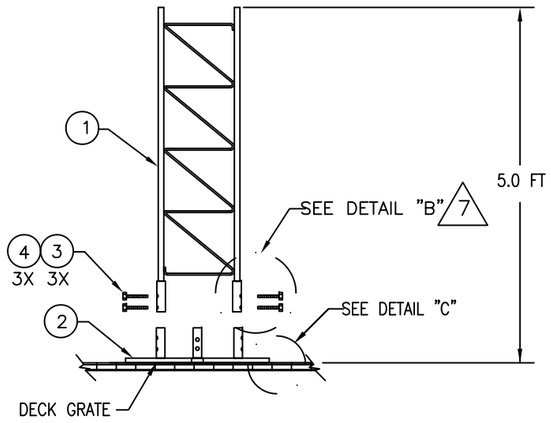
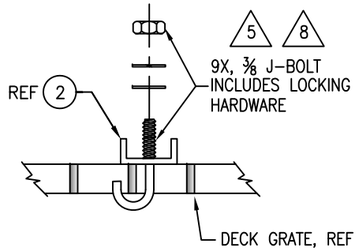
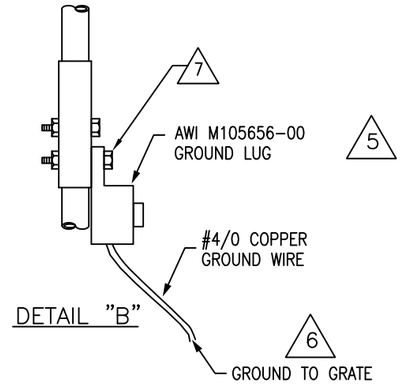




DETAIL "C"



DETAIL "B"

ITEM	PART NO.	DESCRIPTION	QTY.
1	M408530-00	TOWER SECTION, 5' *	1
2	M408527-00	FLAT ROOF MOUNT *	1
3	INCLUDED	7/16" X 2 1/2" NC BOLT WITH NUT *	3
4	INCLUDED	5/16" X 2 3/8" NC BOLT WITH NUT *	3

* SUPPLIED BY ALL WEATHER INC.

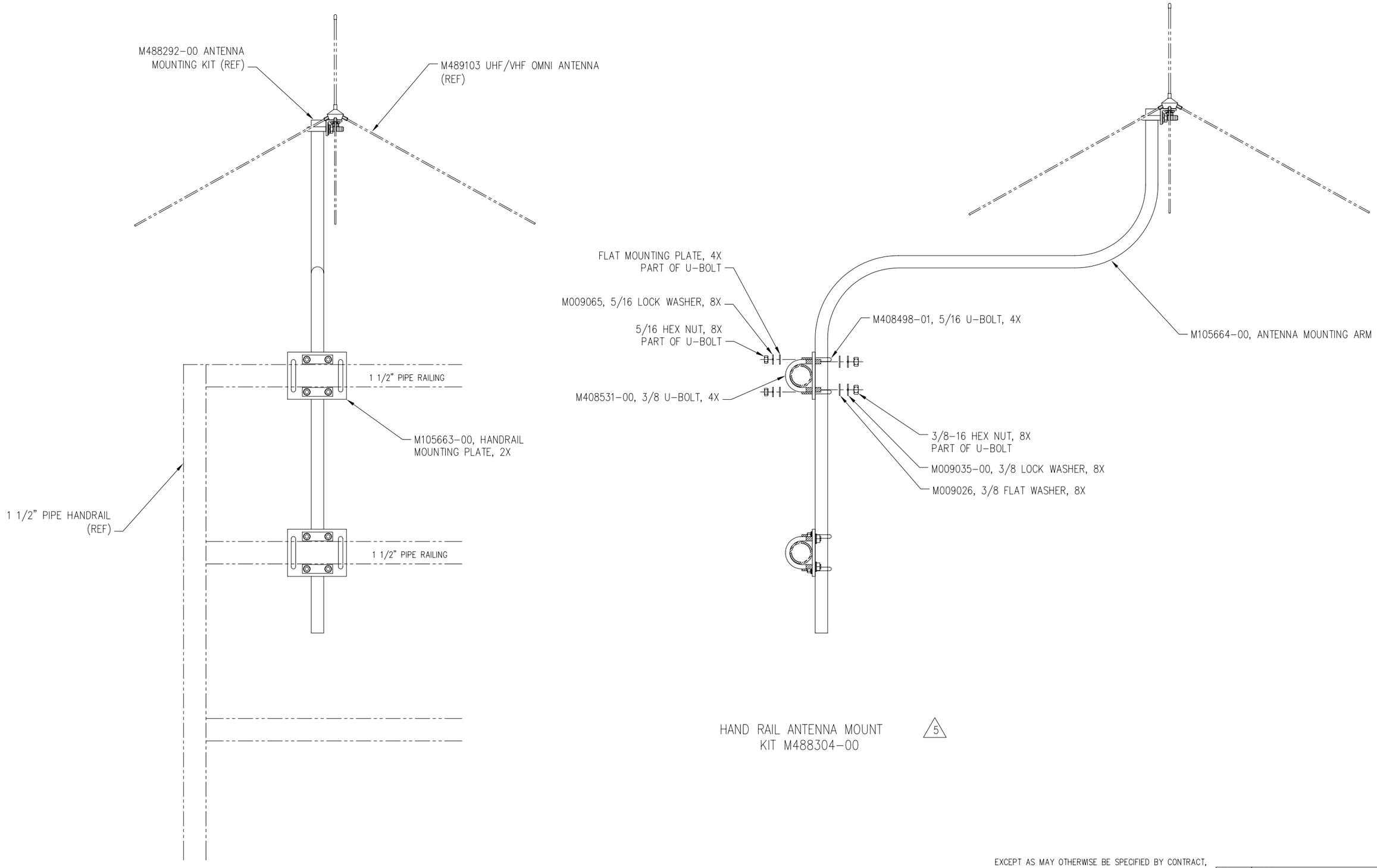
TOWER INSTALLATION

115 V AC 60 Hz 1 PH

SENSOR SITE		
LOCATION	LOAD	BREAKER SIZE
DATA COLLECTION PLATFORM, DAY/NIGHT DETECTOR (TOWER)	500 VA MAX.	15 A
RAIN GAUGE (TOWER)	200 VA MAX.	15 A
PRESENT WEATHER SENSOR (TOWER)	200 VA MAX.	15 A
DUPLEX OUTLET (TOWER)	500 VA MAX	15 A
VISIBILITY SENSOR	400 VA MAX.	15 A
CLOUD HEIGHT SENSOR	1000 VA MAX.	20 A
LIGHTNING SENSOR	200 VA MAX.	15 A
FREEZING RAIN SENSOR	400 VA MAX.	15 A
OTHER SENSORS, AS APPLICABLE	1000 VA MAX.	20 A EACH

CENTRAL DATA PROCESSOR		
CENTRAL DATA PROCESSING EQUIPMENT	600 VA MAX.	15 A

POWER REQUIREMENTS



HAND RAIL ANTENNA MOUNT
KIT M488304-00 △5

Material List for 3000–A		
Quantity	Description	Part No. (or equiv.)
10’	#4/0 AWG copper grounding wire	
1	Circuit breaker panel w/ 100A main breaker (if required), a 20A breaker and 2 (min.) 15A circuit breakers	
1	Main power disconnect box, if required by code	
as req.	Main power transformers	
as req.	Power cable, incoming	120’ ea.
120’ ea.	Power cable, intrasite	12AWG THHN, Black, White, Green
as req.	Signal cable from tower to CDP and from CDP to Remote Display (at sites designated as ”landline” as opposed to UHF radio data link, 4000 ft. max.)	
25’	3/16” polypropylene pull rope	
1	Device box, 5 holes min., 3/4” (power & signal distribution)	Appleton WST275
1	Device box cover	Appleton WCB24
1	GFCI duplex receptacle, 15A, 125V (ac power outlet)	Hubbell GF–5262
1	GFCI duplex receptacle plate w/cover and gasket	Hubbell WPFS 26

Material List for 3000–1		
Quantity	Description	Part No. (or equiv.)
10’	#4/0 AWG copper grounding wire	
1	Circuit breaker panel w/ 100A main breaker (if required), a 20A breaker and 3 (min.) 15A circuit breakers	
1	Main power disconnect box, if required by code	
as req.	Main power transformers	
as req.	Power cable, incoming	120’ ea.
120’ ea.	Power cable, intrasite	12AWG THHN, Black, White, Green
as req.	Signal cable from tower to CDP and from CDP to Remote Display (at sites designated as ”landline” as opposed to UHF radio data link, 4000 ft. max.)	
25’	3/16” polypropylene pull rope	
1	Device box, 5 holes min., 3/4” (power & signal distribution)	Appleton WST275
1	Device box cover	Appleton WCB24
1	GFCI duplex receptacle, 15A, 125V (ac power outlet)	Hubbell GF–5262
1	GFCI duplex receptacle plate w/cover and gasket	Hubbell WPFS 26

Material List for 3000–2		
Quantity	Description	Part No. (or equiv.)
20’	#4/0 AWG copper grounding wire	
1	Circuit breaker panel w/ 100A main breaker (if required), a 20A breaker and 5 (min.) 15A circuit breakers	
1	Main power disconnect box, if required by code	
as req.	Main power transformers	
as req.	Power cable, incoming	120’ ea.
120’ ea.	Power cable, intrasite	12AWG THHN, Black, White, Green
as req.	Signal cable from tower to CDP and from CDP to Remote Display (at sites designated as ”landline” as opposed to UHF radio data link, 4000 ft. max.)	
25’	3/16” polypropylene pull rope	
2	Conduit outlet bodies, 2 holes, 3/4” (visibility pwr & sig)	Appleton C75–M
2	Conduit outlet body covers	Appleton K75–M
2	Conduit outlet body rubber gaskets	Appleton GK75–N
2	Device box, 5 holes min., 3/4” (power & signal distribution)	Appleton WST275
2	Device box cover	Appleton WCB24
1	GFCI duplex receptacle, 15A, 125V (ac power outlet)	Hubbell GF–5262
1	GFCI duplex receptacle plate w/cover and gasket	Hubbell WPFS 26

Material List for 3000–3		
Quantity	Description	Part No. (or equiv.)
30’	#4/0 AWG copper grounding wire	
1	Circuit breaker panel w/ 100A main breaker (if required), a 20A breaker and 6 (min.) 15A circuit breakers	
1	Main power disconnect box, if required by code	
as req.	Main power transformers	
as req.	Power cable, incoming	120’ ea.
120’ ea.	Power cable, intrasite	12AWG THHN, Black, White, Green
as req.	Signal cable from tower to CDP and from CDP to Remote Display (at sites designated as ”landline” as opposed to UHF radio data link, 4000 ft. max.)	
25’	3/16” polypropylene pull rope	
4	Conduit outlet bodies, 2 holes, 3/4” (visibility,ceilometer pwr & sig)	Appleton C75–M
4	Conduit outlet body covers	Appleton K75–M
4	Conduit outlet body rubber gaskets	Appleton GK75–N
2	Device box, 5 holes min., 3/4” (power & signal distribution)	Appleton WST275
2	Device box cover	Appleton WCB24
1	GFCI duplex receptacle, 15A, 125V (ac power outlet)	Hubbell GF–5262
1	GFCI duplex receptacle plate w/cover and gasket	Hubbell WPFS 26

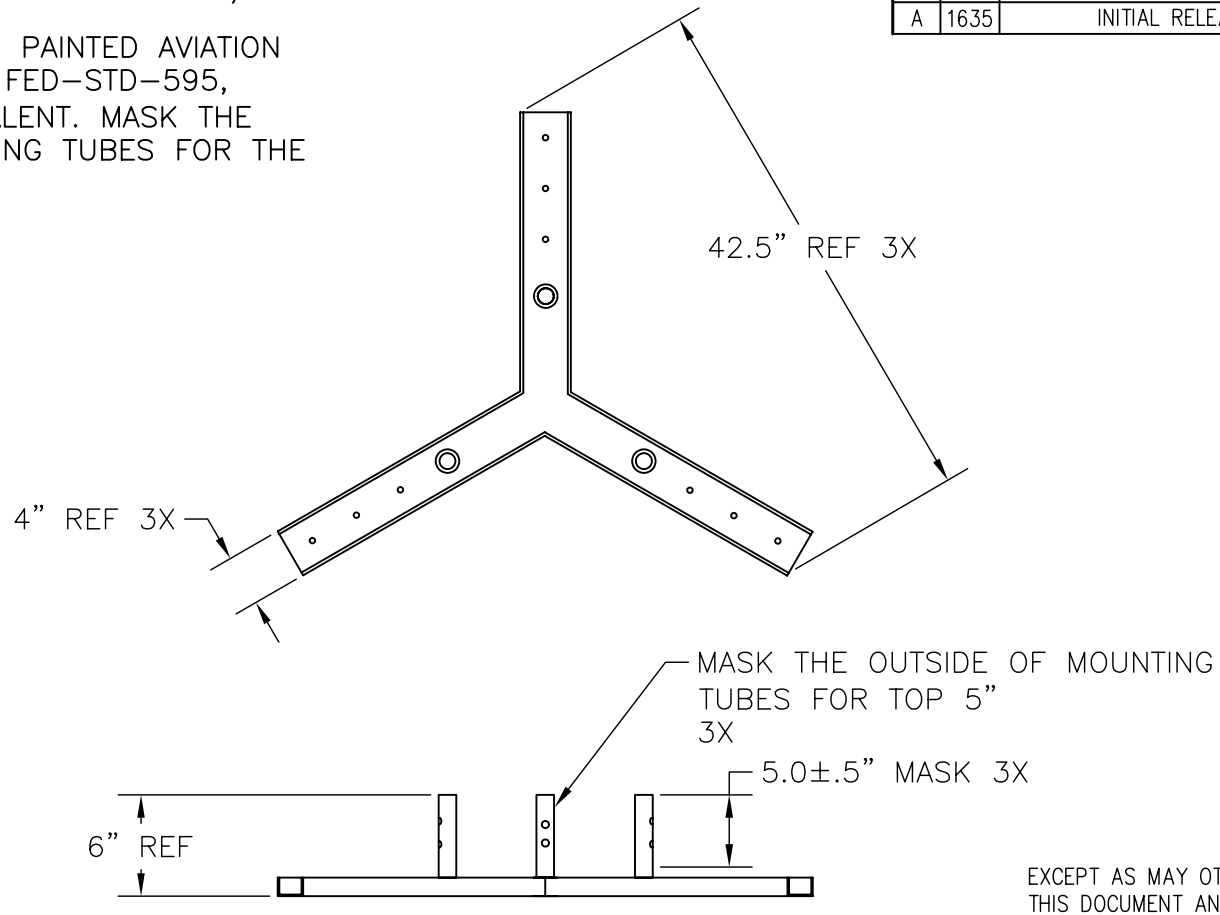
Material List for 3000–T		
Quantity	Description	Part No. (or equiv.)
40’	#4/0 AWG copper grounding wire	
1	Circuit breaker panel w/ 100A main breaker (if required), a 20A breaker and 7 (min.) 15A circuit breakers	
1	Main power disconnect box, if required by code	
as req.	Main power transformers	
as req.	Power cable, incoming	120’ ea.
120’ ea.	Power cable, intrasite	12AWG THHN, Black, White, Green
as req.	Signal cable from tower to CDP and from CDP to Remote Display (at sites designated as ”landline” as opposed to UHF radio data link, 4000 ft. max.)	
25’	3/16” polypropylene pull rope	
6	Conduit outlet bodies, 2 holes, 3/4” (visibility,ceilometer,lightning pwr & sig)	Appleton C75–M
6	Conduit outlet body covers	Appleton K75–M
6	Conduit outlet body rubber gaskets	Appleton GK75–N
2	Device box, 5 holes min., 3/4” (power & signal distribution)	Appleton WST275
2	Device box cover	Appleton WCB24
1	GFCI duplex receptacle, 15A, 125V (ac power outlet)	Hubbell GF–5262
1	GFCI duplex receptacle plate w/cover and gasket	Hubbell WPFS 26

Material List for 3000–Z		
Quantity	Description	Part No. (or equiv.)
50’	#4/0 AWG copper grounding wire	
1	Circuit breaker panel w/ 100A main breaker (if required), a 20A breaker and 8 (min.) 15A circuit breakers	
1	Main power disconnect box, if required by code	
as req.	Main power transformers	
as req.	Power cable, incoming	120’ ea.
120’ ea.	Power cable, intrasite	12AWG THHN, Black, White, Green
as req.	Signal cable from tower to CDP and from CDP to Remote Display (at sites designated as ”landline” as opposed to UHF radio data link, 4000 ft. max.)	
25’	3/16” polypropylene pull rope	
8	Conduit outlet bodies, 2 holes, 3/4” (vis,ceilometer,lightning,freezing rain pwr & sig)	Appleton C75–M
8	Conduit outlet body covers	Appleton K75–M
8	Conduit outlet body rubber gaskets	Appleton GK75–N
2	Device box, 5 holes min., 3/4” (power & signal distribution)	Appleton WST275
2	Device box cover	Appleton WCB24
1	GFCI duplex receptacle, 15A, 125V (ac power outlet)	Hubbell GF–5262
1	GFCI duplex receptacle plate w/cover and gasket	Hubbell WPFS 26

REVISIONS			M408527-00-010	
REV	ECN	DESCRIPTION	DATE	APPROVED
A	1635	INITIAL RELEASE	8-9-08	J.CONNER

NOTES: UNLESS OTHERWISE SPECIFIED;

1. TOWER BASE TO BE PAINTED AVIATION WHITE, COLOR PER FED-STD-595, #17875, OR EQUIVALENT. MASK THE OUTSIDE OF MOUNTING TUBES FOR THE TOP 5", 3X.

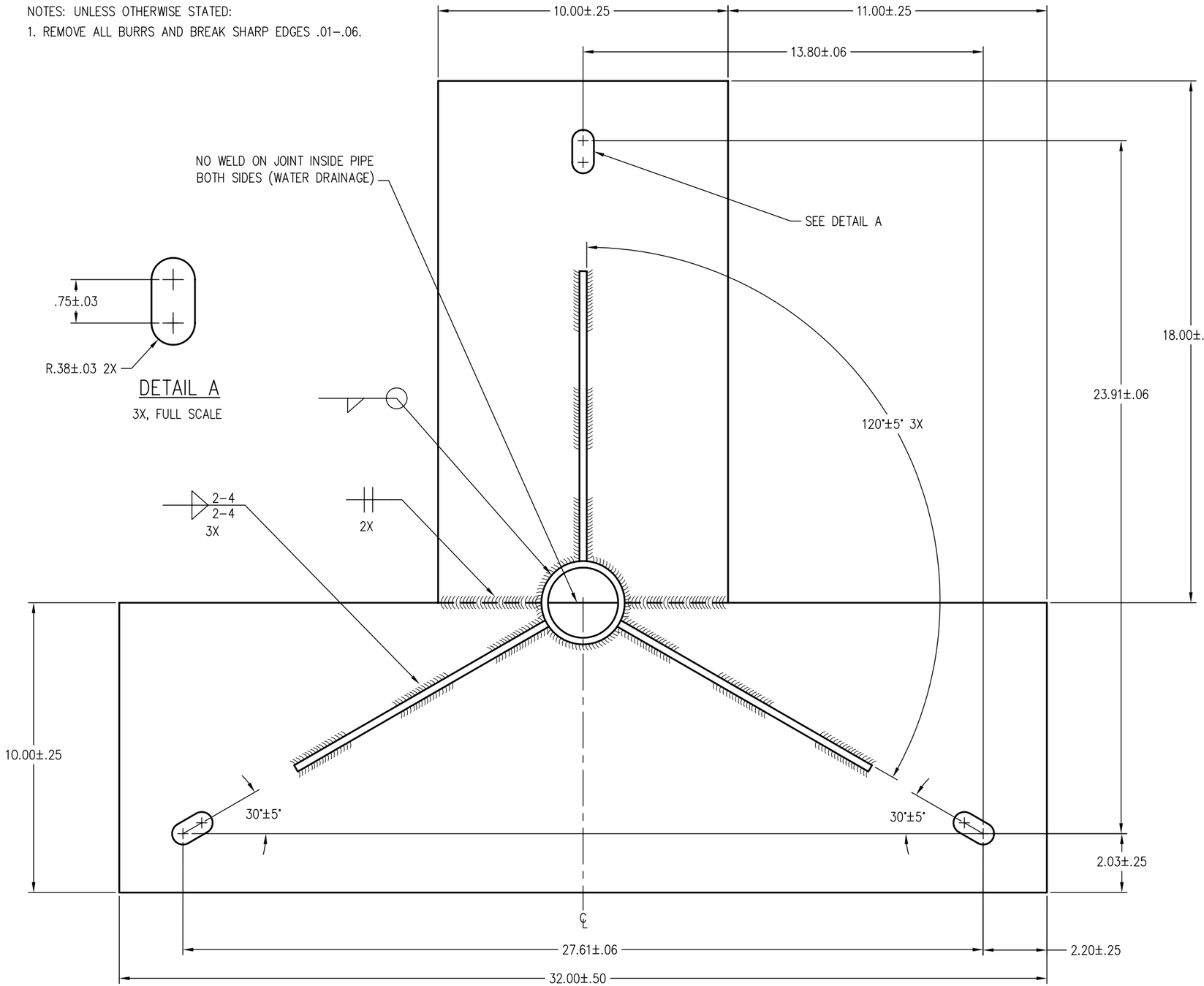


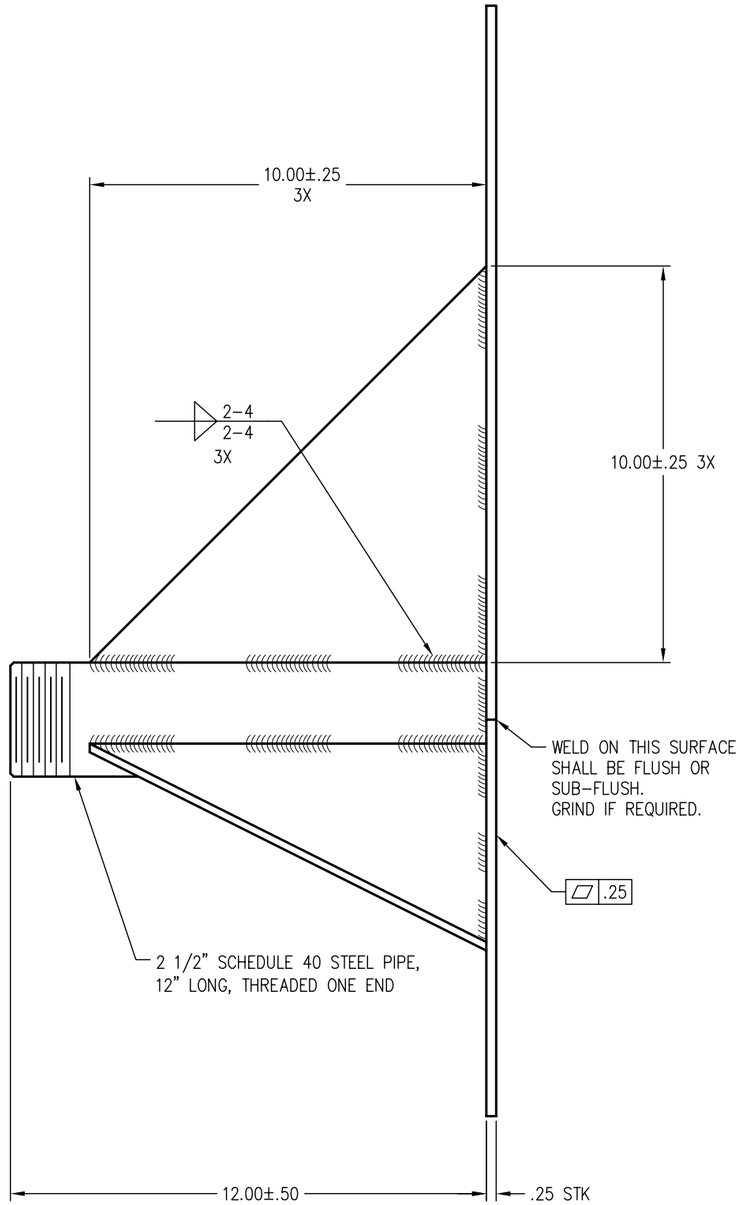
APPEND THE FOLLOWING DOCUMENTS WHEN CHANGING THIS DOCUMENT:		UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES TOLERANCES XX=±.010 ANGLES ±1/2° XXX=±.005 CONCENTRICITY: .003 TIR DO NOT SCALE DRAWING			
		MATL: SEE BILL OF MATERIALS	DRAWN BY: J.CONNER	9-9-08	TITLE: SPECIFICATION DRAWING MOUNT, FLAT ROOF, 8509 TOWER
		FINISH: AS ISSUED	REVISED BY:		
		TREATMENT	CHECKED BY: J CONNER	9-9-08	
			DESIGN ENGINEER: J CONNER	9-9-08	SIZE: B DWG NO.: M408527-00-010
			PROJECT MANAGER: W MARSH	8-9-08	
			APPROVALS	DATE	SCALE: NONE RELEASE DATE SHEET: 1 OF 1

NOTES: UNLESS OTHERWISE STATED:

1. REMOVE ALL BURRS AND BREAK SHARP EDGES .01–.06.

REVISIONS			DWG NO M105619-00-012	
REV	ECN	DESCRIPTION	DATE	APPROVED
A	0887	INITIAL RELEASE	8-28-06	J.CONNER





APPEND THE FOLLOWING DOCUMENTS WHEN CHANGING THIS DOCUMENT:	

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
TOLERANCES
.XX=±.010 ANGLES ±1/2°
.XXX=±.005 CONCENTRICITY: .003 TIR
DO NOT SCALE DRAWING

MATL: MILD STEEL, .25 THK

FINISH: HOT DIP GALVANIZE PER ASTM A123, .004 MIN THICK

TREATMENT: NONE

DRAWN BY: J.CONNER	8-28-06	
REVISED BY:		
CHECKED BY:		
DESIGN ENGINEER:		
PROJECT MANAGER:		
APPROVALS	DATE	

TITLE: FABRICATION DWG, MOUNT, ADAPTER, 8339 TO 8329 FOUNDATION PAD

allweatherinc

SIZE D | DWG NO. M105619-00-012

SCALE 1/2 | RELEASE DATE | SHEET 1 OF 1

This antenna is supplied to operate satisfactorily within the frequency range(s) specified on the carton label. Some models require cutting of radiator and/or radials in accordance with Figure 11. If the antenna is to be used over a range of frequencies, the element lengths should be chosen for mid-range or favor the element length for the most used, or the frequency requiring the greatest range.

ASSEMBLING THE ANTENNA

1) Select antenna location and route cable from set to antenna.

2) Loosen mounting nut and assemble radials to hub as shown in illustration. Tighten jam nuts and lockwashers against hub to secure the radials. Retighten mounting nut.

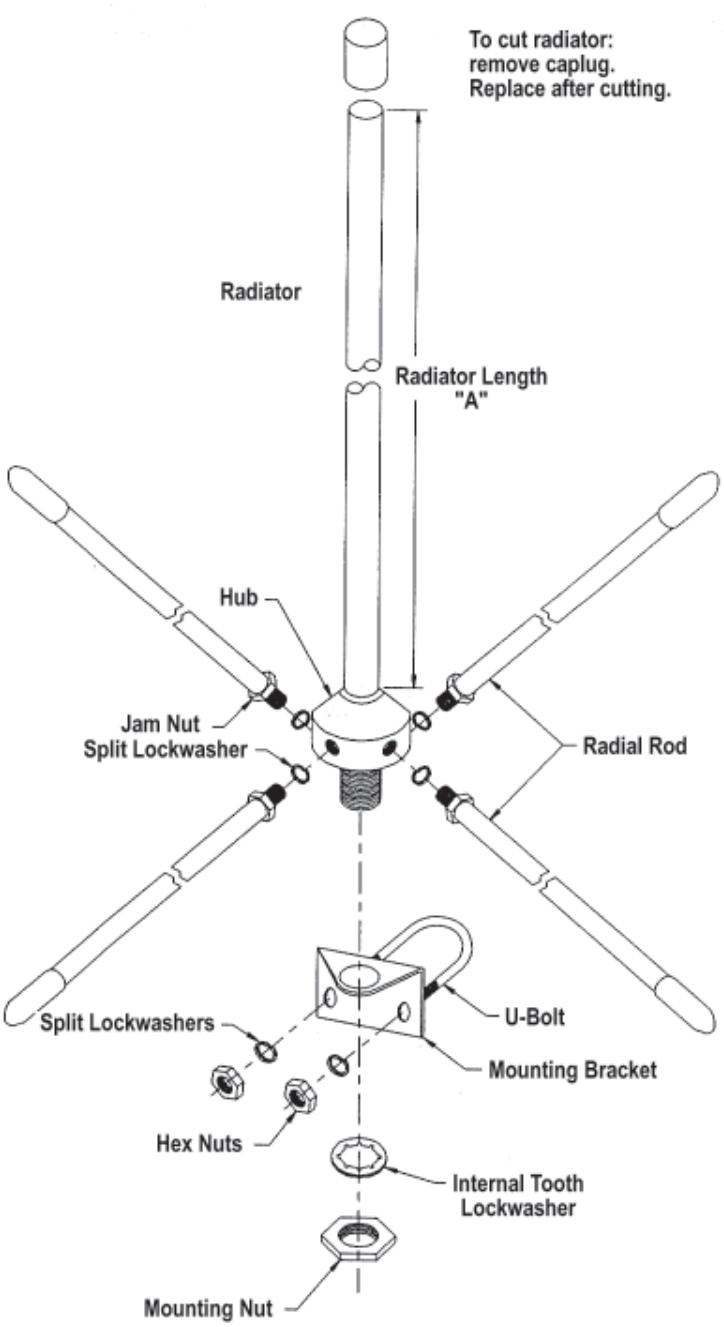
3) Connect cable to antenna (accepts PL-259).

Some models are supplied with cable and connector for the antenna end. Radio end connector is not supplied.

4) Mount antenna onto 1/2"-3/4" pipe, or up to 1-3/8" O.D. tubing (not supplied) with U-bolt, lockwashers and hex nuts provided.

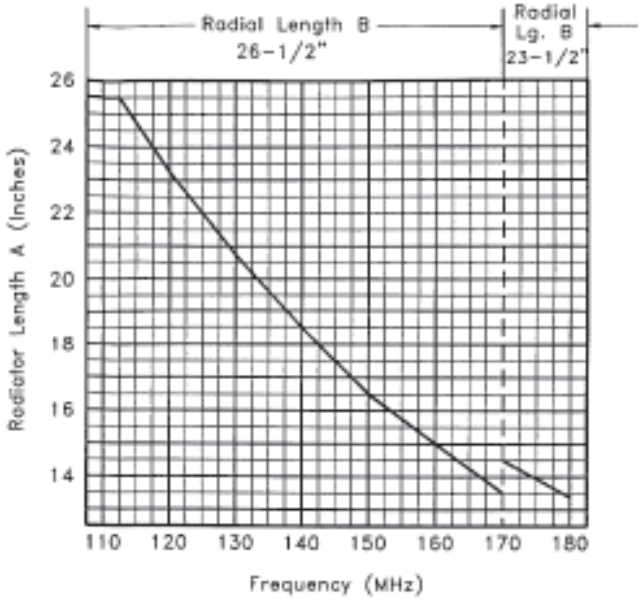
5) Secure cable to mounting pipe with straps or plastic tape to avoid strain on cable connections.

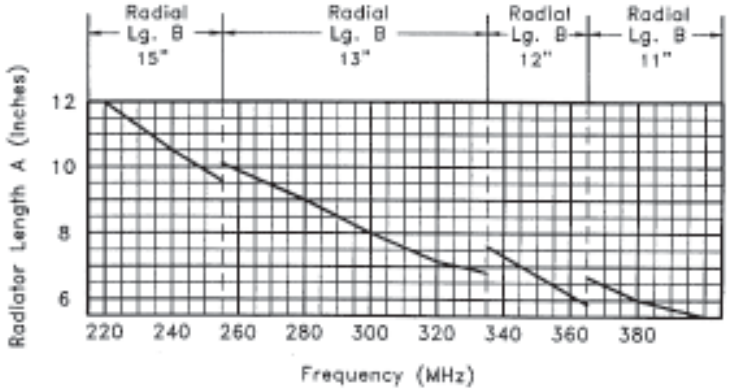
The use of a PTFE or similar lubricant on the threaded portions of the antenna prior to assembly will provide protection from weather and ease future disassembly.



UHF/VHF Antenna Assembly

Lengths on chart are approximate. For finer tuning, use a VSWR bridge if antenna is to be used for transmitting.

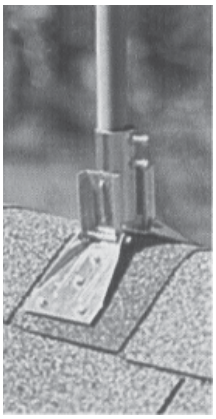




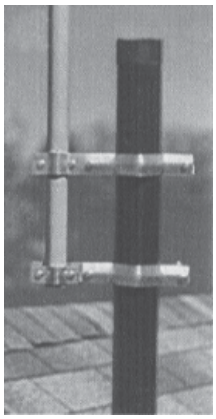
Remove vinyl cap before measuring and cutting. Slide vinyl cap back on after cutting.

TUNING ADJUSTMENT TABLE

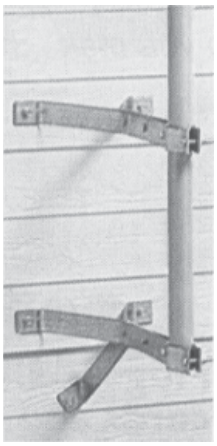
Frequency (MHz)	Radiator Length A (Inches)	Radial Length B (Inches)
406–420	5–5/8	10
450–470	5	8–1/2
470–488	4–15/16	7–3/4
488–512	4–5/8	7–3/4



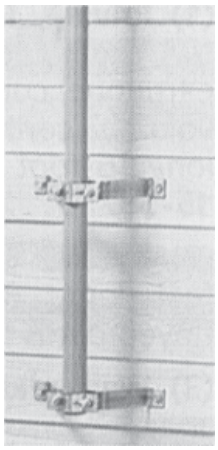
Base and Roof Mount.
Heavy-gauge steel swivel base fits the slope of most roofs. 1¼" mast locks into U-bolt.
Radio Shack P/N 15-889



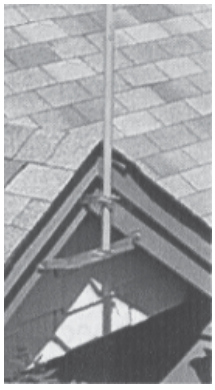
Vent Pipe Mount.
Brackets attach to 2" to 5" vent pipes (GC model fits 2" to 4" vents). 1¼" mast clamps into place.
Radio Shack P/N 15-893
GC Electronics P/N 8802



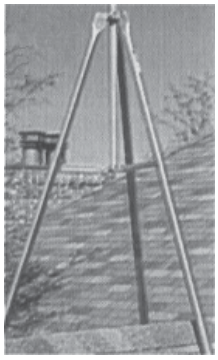
12" Wall Mounts.
Secures 1¼" mast 12" from side of building.
Radio Shack P/N 15-885
GC Electronics P/N 8312



4" Wall Mounts.
Secures 1¼" mast 4" from side of building.
Radio Shack P/N 15-883
GC Electronics P/N 8304



Eaves Mount.
Secures 1¼" mast to hanging rafters or trim boards; fits most medium-pitch roofs. Includes 4 lag bolts.
Radio Shack P/N 15-891



3' Tripod Mount.
Designed for larger antennas and areas subject to strong winds. Fits slope of most roofs. Fits 1¼" mast.
Radio Shack P/N 15-516
GC Electronics P/N 9160

Masts:
Use with 1¼" diameter 5' steel mast (Radio Shack P/N 15-842, GC Electronics P/N 32-9013) or 10' steel mast (Radio Shack P/N 15-843, GC Electronics P/N 32-9014).

Central Station Antenna Mast Options

All Weather Inc.
1165 National Drive
Sacramento, CA 95818
Fax: 916.928.1165
Phone: 916.928.1000
Toll Free: 800.824.5873

3000-O-025
Revision A
March, 2011