



ANCHORGUARD
CORROSION CONTROL SYSTEM FOR TOWER ANCHORS

INSTALLATION INSTRUCTIONS

READ ALL WARNINGS AND INSTRUCTIONS BEFORE INSTALLATION.



WARNING!

This corrosion control system is designed to mitigate corrosion on new or existing tower anchors. The system will not in any way restore already damaged anchors. A complete inspection of the anchors should be conducted whenever there is evidence of pre-existing corrosion.

DESCRIPTION

AnchorGuard systems are designed to control potentially damaging corrosion on buried guy anchors. This is achieved by means of a technology known as **cathodic protection**.

The system utilizes sacrificial anodes buried and electrically connected to the anchors. The anodes will slowly deteriorate while they act to direct corrosion away from the anchors. The number and size of anodes will vary dependent upon the size of the anchor and other buried metal connected to the tower. The corrosive characteristics of the soil play a role in how long the anodes will last before replacement is required, therefore regular testing of the system is required.

The AnchorGuard system is equipped with a sensitive monitoring device. This device is used to measure the systems effectiveness as well as its longevity. Refer to instructions listed under TESTING THE SYSTEM for conducting measurements after installation.

IMPORTANT NOTICE

ANCHORGUARD MODEL SELECTION DATA

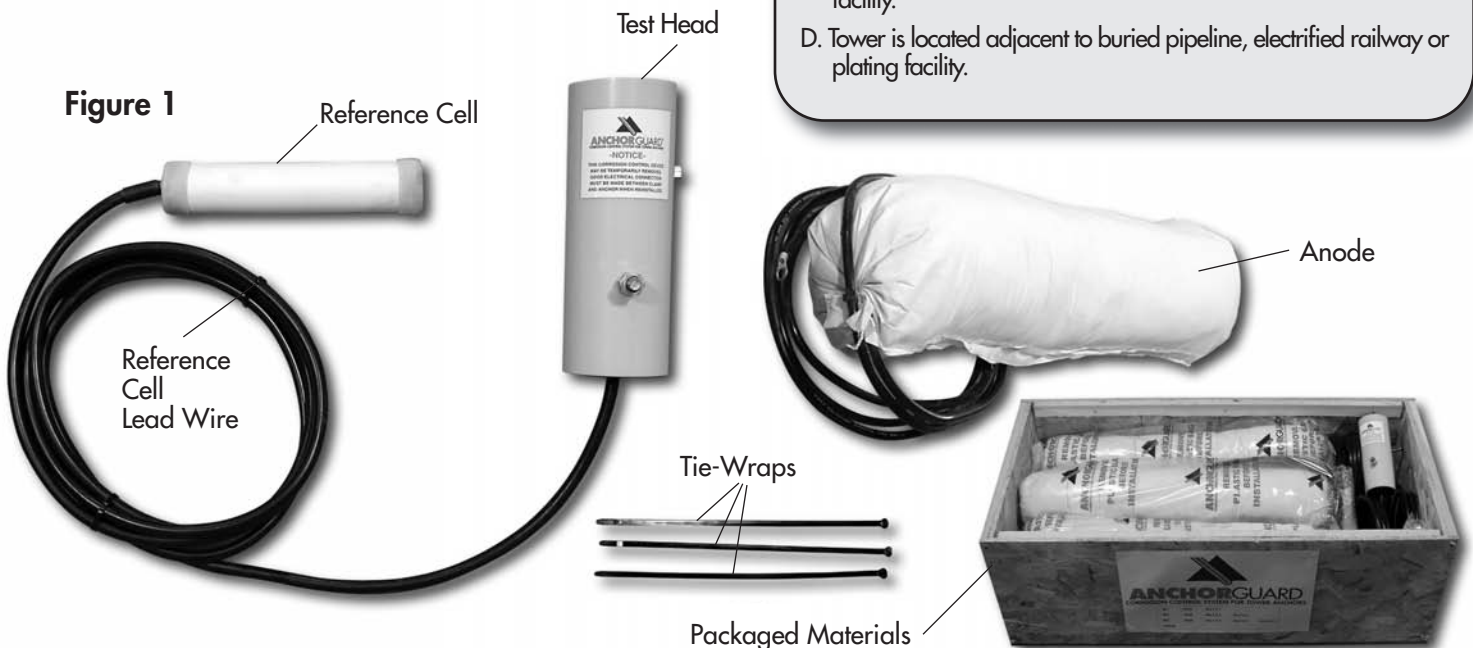
The primary purpose of the AnchorGuard system is to protect the tower guy anchors against corrosion. The system may also be affected by any other buried components that are electrically bonded to the tower and located below grade in the vicinity of the tower, including ground rods, ground wire, metal fencing, buildings, fuel storage tanks, etc. In order for each system to meet its designed service life it is important to take into account variables that are sometimes unique to each site. The buried metallic components that are electrically connected to the tower at or near the site coupled with the soil type are primary functions of the systems longevity and effectiveness. To determine what model system(s) you need, match the tower dimensions with the AnchorGuard model number listed to the right. Soil analysis is available through the manufacturer for more detailed model selection.

TOWER FACE DIMENSIONS	AnchorGuard MODEL #
18" or less - Horizontally from leg to leg on the tower face	AG 2
19" or more - Horizontally from leg to leg on the tower face	AG 3

Contact the manufacturer when any of the following conditions exist.

- A. Soil resistivity is below 1000 ohm-cm in a saturated state.
- B. Tower utilizes more than three (3) copper ground rods at the tower base, and (1) copper ground rod at each anchor.
- C. Tower is located near electrical substation or other highly grounded facility.
- D. Tower is located adjacent to buried pipeline, electrified railway or plating facility.

Figure 1

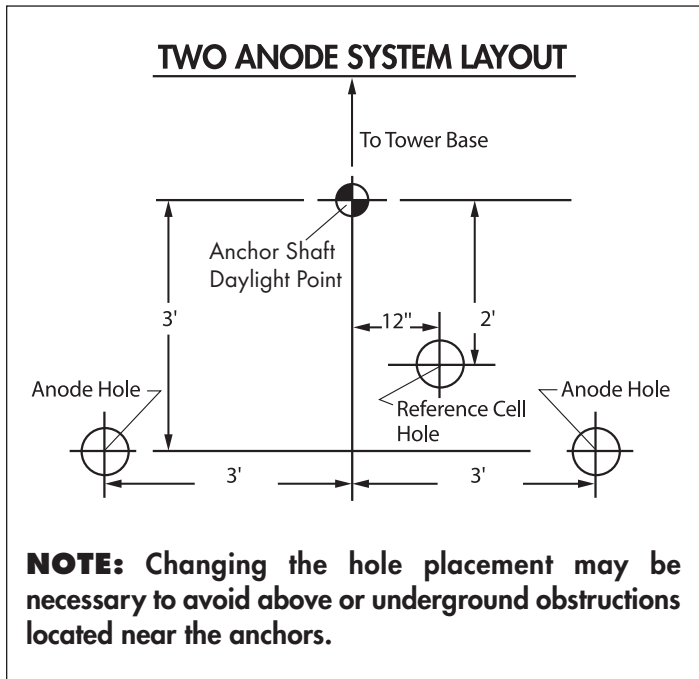


1. BORE HOLES FOR ANODE PLACEMENT

MODEL AG2

Using an auger with an 8-inch bit, bore 2 anode holes 6 feet deep. Refer to **Figure 2** for exact hole placement.

NOTE: Two man hand augers can also be used to bore holes.



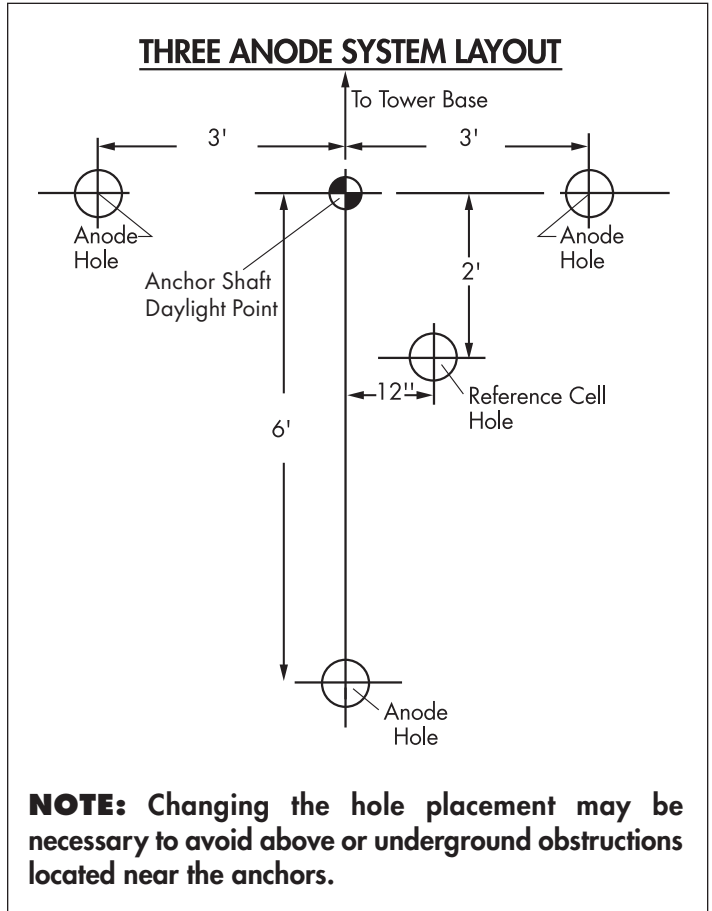
NOTE: Changing the hole placement may be necessary to avoid above or underground obstructions located near the anchors.

Figure 2



MODEL AG3

Using an auger with an 8-inch bit, bore 2 equally spaced front and 1 rear anode hole 6 feet deep. The front two holes should be approximately 2-3 feet on either side of the anchor centerline. The rear hole should be approximately 6 feet to the rear of the centerline of the anchor shaft. Refer to **Figure 2** for exact hole placement.



NOTE: Changing the hole placement may be necessary to avoid above or underground obstructions located near the anchors.

Figure 3

2. BORE HOLE FOR REFERENCE CELL PLACEMENT



WARNING!

Remove plastic bag from reference cell before installation. The reference cell will not function with plastic bag in place.

Using an auger with an 8-inch bit, bore a reference cell hole a minimum of 5 feet deep. Place the hole 2 feet behind and 1 foot to the side of the anchor centerline. (Refer to **Figures 2 & 3** for exact hole placement.)

3. INSTALL REFERENCE CELL, TEST-HEAD AND DIG TRENCHES

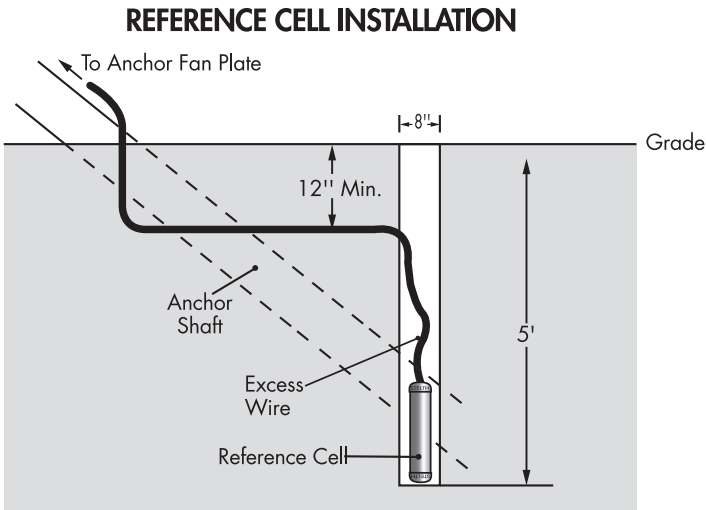


Figure 4

Place the reference cell in the bottom of hole. Dig a trench 1 foot deep from the reference cell hole to the anchor shaft. Place the reference cell wire in the trench and route to the anchor fan plate as shown in **Figure 4**. Attach the test head anchor clamp to the back of the anchor fan-plate. Tighten the clamp set screw to secure the test-head to the anchor as well as make a good electrical connection between the clamp and the anchor. **DO NOT OVERTIGHTEN! THIS MAY CAUSE THE SET SCREW TO SEIZE PROHIBITING FUTURE REMOVAL.**

4. INSTALL ANODES AND DIG TRENCHES



WARNING!

Do not remove cloth bag from anodes. The bag contains a back-fill material designed for optimum system operation.

TYPICAL ANODE INSTALLATION

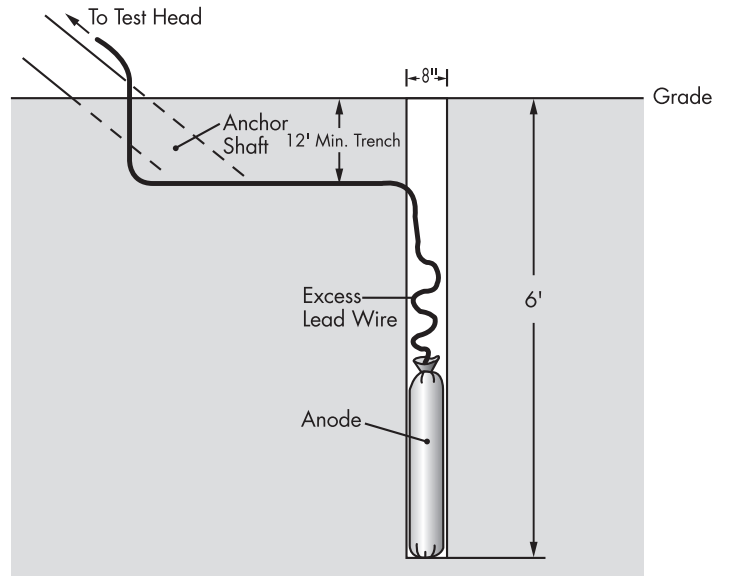
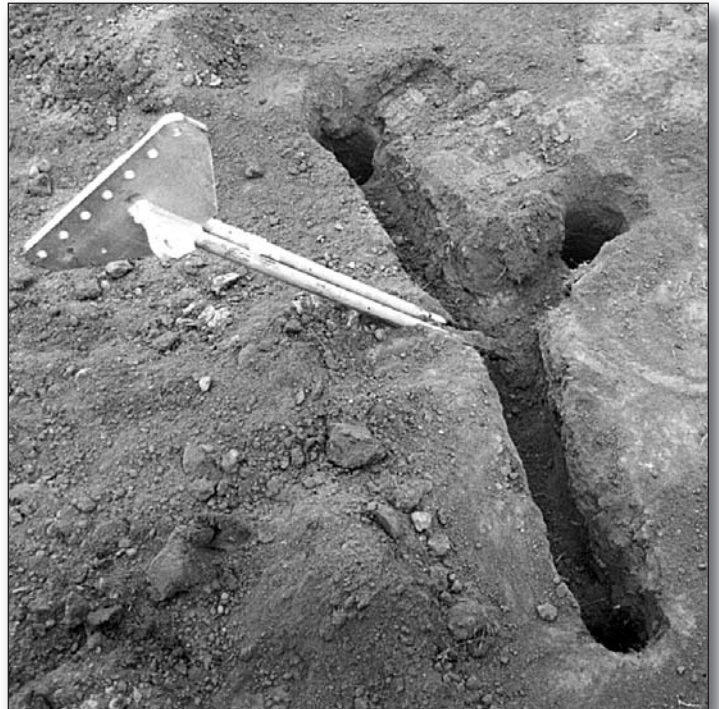


Figure 5

Place one anode in the bottom of each hole. Dig lead wire trenches 1 foot deep connecting the anode holes to the anchor shaft. Place lead wires in the trenches and route to the test head as shown in **Figure 5**.



Fasten the anode lead wires to the anode lug on the test-head. Apply a liberal amount of non-corrosive compound such as Penetrox or Copperkote to the anode lug and the anode lead connectors. Use a wrench to hold the backing nut on the anode lug, then tighten the top nut with a second wrench. Tighten lug nut until the anode leads are snug. **BE SURE TO HOLD THE BACKING NUT WHEN TIGHTENING THE ANODE LUG NUT. FAILURE TO DO SO MAY RESULT IN DAMAGE TO THE TEST-HEAD.**

5. SECURE ANODE LEAD WIRES AND BACKFILL

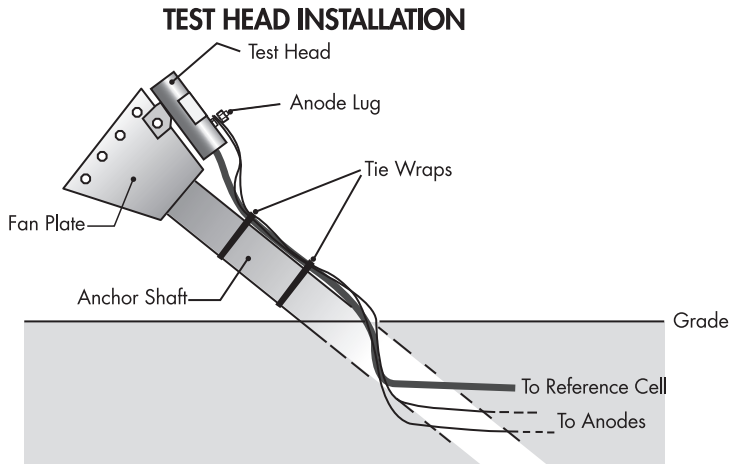
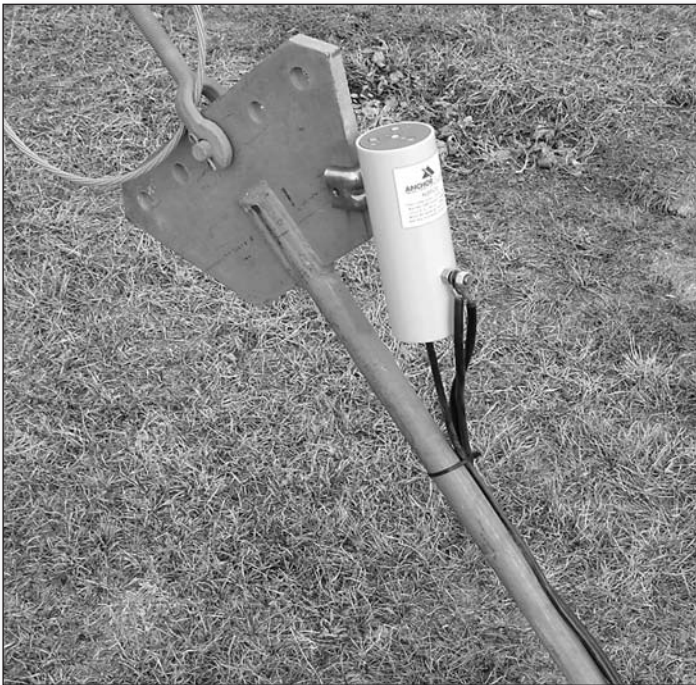


Figure 6

After installing all anodes, use the tie-wrap to fasten the anode lead wires and the reference cell wire to the anchor shaft above grade as shown in **Figure 6**. Where possible pour five gallons of water in each anode and reference cell hole, back-fill and compact all holes and trenches.



Good electrical connection must be made between the anode lead wires and the anode lug in order to ensure proper system function.

6. TESTING THE SYSTEM



Figure 7

Potential Measurement – Using a digital volt meter set on **DC Volt** setting at the meters lowest voltage sensitivity, place the meters negative lead on the test point labeled "**C**" and the positive lead on the test point labeled "**G**" as shown in **Figure 7**. Read the voltage on the digital display and record on the **ANNUAL TESTING DATA SHEET** provided on the back of these instructions. A reading of between $-.75$ to -1.25 DC Volts should be achieved.

Shunt Measurement – Using the digital volt meter set on the **Millivolt** setting; place the meters negative lead on the test point labeled "**S1**" and the positive lead on the test point labeled "**S2**". Read the voltage on the digital display and record on the **ANNUAL TESTING DATA SHEET** provided on the back of these instructions. A reading of between $.1$ to 2.5 millivolt should be achieved.

NOTE: Evidence that the AnchorGuard® System is properly working will be noted by an increase in the voltage measurement as tested between the "C" and "G" test points. Voltage measurements typically increase for several months after installation. A marked drop in voltage could be an indication that the system is not properly functioning. Testing should be conducted and recorded after one year of continuous use; and

every year thereafter. E-mail or fax results to AnchorGuard and a performance report will be returned. These subsequent measurements will be the basis for future reference.

If no voltage is measured check the anode lead wires and test head clamp to ensure that they are securely connected.

Warranty

The AnchorGuard® Corrosion Control System for Tower Anchors is guaranteed against defective material and workmanship for a period of one year from the date of purchase by the original purchaser. The obligation of AnchorGuard warrants to the original purchaser of the product and the end-user of the product (in the event the original purchaser is not the intended end-user of the product) that for a period of one year from the date of delivery of the product to the original buyer, or for so long as the end-user owns

the tower in which the product is installed, whichever occurs first, the product manufactured by AnchorGuard will be free from material defects in workmanship and materials, which shall, after being returned with transportation charges prepaid, be found defective in material or workmanship upon examination by AnchorGuard, L.L.C. This warranty is in lieu of any and all other warranties and liabilities, expressed or implied, including but not limited to any warranty of merchantability or fitness for any purpose.

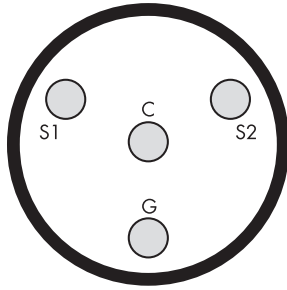


ANCHORGUARD®
CORROSION CONTROL SYSTEM FOR TOWER ANCHORS

2224 E. 39th Street N. • Sioux Falls, SD 57104
(800) 653-3392 • FAX: (605) 332-7833 • info@AnchorGuard.com

ANNUAL TESTING DATA SHEET

SITE DATA



AnchorGuard Test Head

Site Name: _____

Company Name: _____

AG Model #: _____

Date Installed: _____

TEST DATA

Voltage normally climbs for several months after installation.

Date Tested:	Initial Readings	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11

Inner Anchor

Anchor A C to G:												
Anchor B C to G:												
Anchor C C to G:												

Anchor A S1 to S2:												
Anchor B S1 to S2:												
Anchor C S1 to S2:												

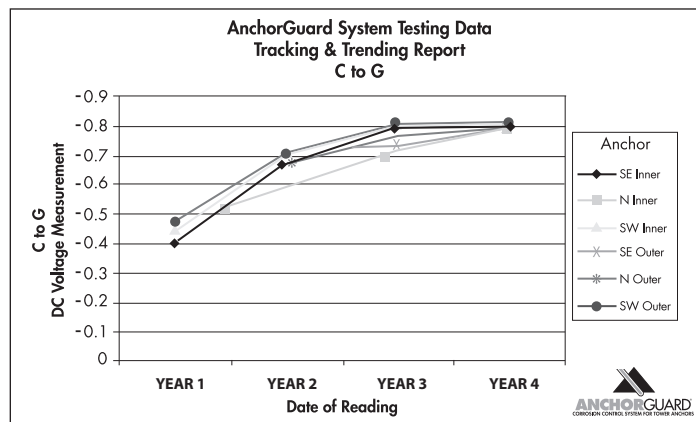
Outer Anchor (if applicable)

Anchor A C to G:												
Anchor B C to G:												
Anchor C C to G:												

Anchor A S1 to S2:												
Anchor B S1 to S2:												
Anchor C S1 to S2:												

Test and record after one year of continuous use and at least annually thereafter.
 Fax or E-mail your results to AnchorGuard for an updated Tracking & Trending Report

SAMPLE REPORT ➤



Comments: The readings measure the potential between the anodes and the steel anchor shaft. They have increased accordingly, indicating that the system is functioning properly. Readings above -.75 indicate adequate protection for your tower anchors.



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