

**Pole Owner's Manual, Warranty & Maintenance
Must Be Forwarded To The End User and/or Customer**

GENERAL PRODUCT WARRANTY:

VALMONT INDUSTRIES, INC., warrants its products to be free from defects in materials and workmanship. Valmont Industries, Inc. will repair or replace without charge, F.O.B. Factory, any defective part returning to Valmont Industries, Inc., **within one year** from the date of delivery of the goods.

EXCLUSION OF VIBRATION FATIGUE TO GENERAL PRODUCT WARRANTY:

The General Product Warranty specifically excludes fatigue failure or similar phenomena resulting from induced vibration, harmonic oscillation or resonance associated with movement of air currents around the product (see EFFECTS OF VIBRATION).

The above warranties are given in lieu of all other warranties express or implied, including without limitation, the warranty of merchantability and the warranty of fitness for a particular purpose. Valmont assumes no liability for consequential or liquidated damages arising out of a breach of the sale, including any warranties arising there-from, and buyer's remedy shall be limited to repair or replacement of defective parts as described above.

Any action for the breach under a sale including any warranties arising there-from must be commenced within one year after the cause of action accrues.

SPECIAL DESIGN LOADING:

For design or stress loading applications, other than those covered in each design section such as overhead wiring, guying of structures, structure mounted applications, or other field installed attachments, consult Valmont for design recommendations.

EXISTING FOUNDATION OR ANCHORAGE:

If the poles are to be used on an existing foundation or on other structures, the customer assumes all responsibility for the structural integrity of the existing foundation and anchorage. The customer also assumes all liabilities associated with ensuring the pole being ordered will be a compatible fit to the existing foundation or anchorage.

INSTALLATION & MAINTENANCE INFORMATION:

Distribute this information to installation personnel, future maintenance personnel, and owners.

This general information deals primarily with the long term durability of structures of the type supplied by Valmont. It is not intended to be a comprehensive description of how to install these structures. Competent installation contractors must be consulted upon for practices, and equipment that meet the demands of the conditions at each job location. Valmont cannot be responsible for any damage that occurs during or after installation, or for any structure that has been modified or that is utilized in some way other than that described in our application recommendations.

For information about the structural capability of these products or about installation practices, please consult with the factory or nearest Valmont representative.

GROUNDING & PROTECTION AGAINST ELECTRIC SHOCK:

The purchaser and installer must provide proper electrical grounding and warnings about any electrical hazards in accordance with applicable codes.

CORROSION PROTECTION:

Structures that are to be stored prior to use should be protected from moisture retention and kept well ventilated. Immediate removal of all packing and shipping materials is recommended to prevent accelerated finish deterioration. A good stock rotation program (first in – first out) is recommended to minimize storage damage or deterioration. Foundation details should assure that water or excessive moisture cannot accumulate at the base of the pole. This includes providing drainage for any water caused by condensation inside the pole.

All finishes are subject to gradual deterioration. The rate of deterioration is a function of many variables such as:

- Ultraviolet damage from constant sun exposure
- Corrosive elements in the atmosphere
- Ground level exposure to mechanical damage.
- Salt spray from road surfaces, or a marine environment.
- Ground level exposure to corrosive materials and soil conditions.
- Moisture from rainfall or condensation.
- Underground soil / ground water exposure

An on-going maintenance program must include periodic inspection for normal deterioration of the protective coating and for any indication of corrosion, which may be localized. Renewal of the protective end of the coating, both inside and outside, must be done at the end of the coating life to preserve the structural integrity of each assembly. Valmont's brochure "Protective Coatings for Steel" has additional information on corrosion protection.

FIELD PAINTING:

The following information applies only to application of finish coats over Valmont's standard prime coats (Valmont Specifications F73). The painter must check whether the prime coat is Valmont's standard or a special finish specified by the purchaser. The primed surface should be free of any contaminant detrimental to adhesion, such as grease, oil and dirt. This can be accomplished by chemically cleaning contaminated areas with stoddard solvent, petroleum naphtha, mineral spirits, turpentine, xylol or toluene. Light sanding of the primed surface further enhances adhesion of the top coat. Spot prime such areas as scratches and mars that have penetrated near or to the substrate.

Note: Field applied topcoats containing high strength solvents should be tested for inter-coat and system adhesion. Primed surfaces not top coated within 30 days should be lightly sanded or chemically cleaned.

WEATHERING STEEL:

Weathering steel is not a completely maintenance-free material. An on-going maintenance program must include periodic inspection for any abnormal corrosion. Suppliers of weathering steel can supply data about the behavior of these materials in various environments. Their application recommendations should be consulted for best results. It is important to avoid continuous exposure to moisture. Water, damp debris, or soil on weathering steel surfaces will cause accelerated corrosion. Excessive vegetation around the base can be harmful. A build-up of corrosion debris can adversely affect the inside of the pole base. Unless tubular members are hermetically sealed they should be kept open for ventilation, particularly at the base. At least one steel supplier recommends painting closely fitting (faying) surfaces. The best time for painting is immediately prior to installation to minimize damage to the protective coating.

EFFECTS OF VIBRATION:

Although rare, vibrations severe enough to cause damage can occasionally occur in structures of all types. Vibration in poles is influenced by many interacting variables and is therefore generally unpredictable. The three main factors that lead to abnormal vibration are (1) localized wind conditions; (2) the shape, placement, and alignment of the equipment attached to the structure; (3) the amount of dampening contributed by the method of attachment of the equipment, by the internal wiring, or by the foundation to which the structure is affixed.

Almost all structures experience a certain amount of small-amplitude harmonic vibration that generally does not cause damage to the structure. The condition to be concerned about is a continuous harmonic vibration at noticeable amplitudes under frequently recurring conditions, i.e. low velocity winds, normal traffic flow on a bridge, etc. If relatively violent harmonic motion is observed, the structure should be immediately inspected for damage and a prompt course of action to eliminate the vibration should be developed. While the percentage of pole structures affected by vibration damage is overall very small, where it does occur, the pole structure can fail.

There is no single cure that will assure the prevention of all modes of vibration. Vibration is believed to be more likely to occur when structures (or components such as arms) are installed without attaching the equipment, which the structures are designed to support. Therefore the intended equipment, or devices equivalent in damping characteristics, should be installed at the time of erection. Steel poles have been less affected by vibrations than poles of other materials. However, the user's maintenance program should include observation for excessive vibration and examination for any structural damage or bolt loosening.

For additional information about vibration, please consult with factory or nearest Valmont representative.

ANCHOR BOLT FOUNDATIONS:

If anchorage hardware is furnished by others, the correct size and strength must be used. When leveling nuts are used, the lower nuts should be close to the concrete surface (about 1" maximum). Large spaces between the pole base plate and the concrete can cause excessive stresses in the anchor bolts, particularly when there are large torsional forces in the pole.

TRANSFORMER BASES:

In attaching a pole to a transformer base, when the pole base plate has slotted holes, place the connecting bolts on the largest possible bolt circle (i.e. the outer ends of the slots).

ASTM A325 BOLTS:

Threads may need to be lubricated in the field in order to achieve bolt tension in accordance with AISC recommendations. Hardware suppliers use beeswax & various commercial waxes as lubricants. They indicate that products like "WD-40" are commonly used in the field.

HINGED POLES:

Wiring must pass through the wiring protection guide at the hinge to assure that the insulation won't be damaged during raising and lowering. The raising and lowering winch must be operated smoothly and the winch cable kept taut to avoid impact loadings, which could cause collapse of the shaft extension shroud.

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Recommended Maintenance Program for Traffic, Lighting, Pedestrian, and Span Wire Poles.

Scope: This is a check list for traffic, lighting, pedestrian, and span wire poles to be used for pole inspection. This is a maintenance program for the above stated poles only. It is also not meant to include any of the electrical components, signals, control panels, or wiring on the structures. The responsibility of maintenance falls under the jurisdiction of the owner.

Frequency: Upon any visit to the pole, the check list below should be reviewed. Each structure should be checked a least twice a year. More frequent visits may be required if problems persist. Painted poles located in close proximity to main thoroughfares will require more frequent visits to maintain the finish.

Check List

(A) Mechanical

Check to insure anchor bolt nuts are tight, both top and bottom side of the base plate. Snug bottom leveling nut and tighten the top nut by turn of the nut method.

Visually inspect all structural welds for any signs of rust or cracking at or near the listed welds – Notify the manufacturer if a crack is observed.

- Base plate weld
- Hand hole rim weld
- Mast arm simplex plates and gussets
- Luminaire arm plates and gussets

Check structure for missing attachments:

- Pole top cap – Replace as required
- Nut covers – Replace as required
- Hand hole cover(s) – Replace as required
- Mast arm end caps – Replace as required

Check attachments for loose hardware:

- Mast arm – tighten as required – replace as soon as possible. High strength (ASTM A 325) hardware should not be reused.
- Luminaire arm – tighten as required – replace as soon as possible. High strength (ASTM A 325) hardware should not be reused.
- Span wire clamps – tighten as required.
- Pole top cap – tighten as required.
- Nut covers – tighten as required.
- Hand hole cover(s) – tighten as required.
- Mast arm end caps – tighten as required.

(B) Vibration

Check the pole for any signs of wind induced vibration. Observe the pole for movement of the shaft, touch the pole to see if you can feel any vibration, and/or listen for wires rattling against the inside of the pole shaft. Notify the manufacturer – some type of mitigation device will be required to attempt to stop the vibration. If vibration is allowed to continue, fatigue failure could occur. Vibration is an act of nature. Fatigue failure due to vibration is not covered under factory warranty.

Check the mast arm for galloping. Notify the manufacturer – some type of mitigation device will be required to attempt to stop the galloping. If galloping is allowed to continue, fatigue failure could occur. Galloping is an act of nature. Fatigue failure due to galloping is not covered under factory warranty.

(C) Finish

Check the finish for any damage or rusting in the coating:

- Galvanized surface – Check the galvanized coating for any damaged areas such as scales, nicks, scratches, scraps, cuts, or rusting. Clean damaged or rusted area and coat with a zinc-enriched paint such as ZRC (or equivalent) per ASTM A 780.
- Painted surface – Check the paint film for any damage areas such as scales, nicks, scratches, scraps, cuts, or rusting. Clean damaged or rusted areas, prime, and top coat per manufacturer's recommendation.