

**Recommended Installation Procedure For ClampStar
CRU Transmission Class Conductor Repair Units**

These instructions do not claim to cover all details or variations in equipment or installation, nor do they provide for all possible conditions concerning installation, operation or maintenance of this equipment. If further information is desired or if particular problems are encountered which are not sufficiently covered in this guide, contact Classic Connectors, Inc. at the above address or telephone numbers.



This installation instruction is written for "Bare-Hand" installation on Energized Conductors, and assumes only qualified individuals with appropriate training and certification will be performing the work. It is not intended to serve as a "Safety Procedure". All "Safety Procedures", clearances and methods, as adopted by the user shall be strictly followed. The product may also be installed with Live Line Tools (Hot-Sticks), and the use of those tools are to be determined by those performing the work, and will not be addressed in this instruction set.

ClampStar® assemblies come individually packaged in sealed poly bags with their cable grooves factory-loaded with proprietary inhibitor compound. The assembly shall be kept in the sealed container prior to installation to prevent dust/dirt contamination. Additional inhibitor is not required and alternate inhibitor compounds shall not be used.

ClampStar Conductor Repair Units are intended for restoration of damaged conductor from abrasion and wear, lightning damage, gunshot wounds and broken stranding similar to the photos below. The ClampStar CRU can fully restore both electrical and mechanical integrity for most damage situations on all types of conductor. With ACSR, it is necessary for at least 70% of the core strands to remain intact. For most situations, as much as 50% core damage is allowable unless extremely high tensions are required.



Installation Procedure:

Ensure that the correct ClampStar® part number has been chosen, and that it is appropriate for the application. The package label includes the part number and conductor range based on conductor diameter.

In preparation, determine how the installation is to be performed, in a de-energized application - or on an energized conductor, and if energized, whether the installation will be the "*Bare-Hand*" method, or if it will be completed with "*Hot-Sticks*". It is the responsibility of the crew to be proficient with the type of work planned and be familiar with the tools used and applicable safety procedures. Review all pertinent safety instructions and procedures applicable to the voltage class of the line, based on documentation from the operating utility. **NOTE:** If the planned installation is with "*Hot-Sticks*" an installation kit is required, and available, from the ClampStar® factory.

Prepare the ClampStar® Unit

To prepare the ClampStar®; remove the unit from the sealed packaging, taking care to keep dirt/dust from contaminating the pre-applied inhibitor.

Prepare the Conductor

Begin by preparing the conductor in the locations where the clamping body of the unit will be located. It is suggested that the conductor be cleaned approximately 6 inches (100-150mm) beyond the anticipated location to allow for final positioning of the unit.

Brush the conductor vigorously with a clean Stainless Steel wire brush to roughen the surface of the conductor that will be in contact with the ClampStar unit. Dry brushing is all that is required. The inhibitor is preloaded from the factory in the conductor grooves of the ClampStar, and under the keepers as required. No other inhibitor is to be used.

Following brushing, it will be necessary to assure the stranding is laid back in its original position. This is sometimes difficult with badly frayed stranding. In some cases short pieces of stranding may need to be cut off (it is already broken) assure the cut is covered by at least 6 inches of the CRU body.

Landing the ClampStar® CRU

Position the body on the top of the tension span conductor, and slide the head in until it is fully seated which will be centered with the body.



Tighten the "*Torque Limiting Setscrews*" hand tight, or slightly more, to hold the head against the stops in the body.



Torque Limiting Setscrews

Transmission Class ClampStar® connectors are supplied with setscrews designed to shear at the appropriate torque level. They have proven very accurate, even with power drivers. The use of power drivers, or "Rattle Guns", is recommended, as it is a tremendous time saver, and substantially reduces installer fatigue. The "Torque Limiting Set Screw" negates the need for a torque wrench, assures that proper fastener torque is achieved, and also provides inspectors a means to verify proper installation.

The fasteners may be tightened with either a T-60 Torx® or "star" 6 spline bit, or a ¼" (19mm) socket. A T-45 bit is required to loosen the fasteners, if necessary after the shear head is snapped off.



Torque Limiting Setscrews (cont.)

Go over fasteners in a linear fashion, equivalent to the number of layers of aluminum stranding over the core. For example, assume a conductor has 3 layers of aluminum stranding over 7 steel core strands. Optimally, one will apply torque to each fastener in succession, 2 times, with the 3rd application of torque continuing until the head snaps off. This will occur at 55 lbf/ft (75Nm).

Once the Torque Limiting Screw heads are snapped off, the unit will be corona free through 500kV.



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