



Wire Splice Installation Instructions For Large Gauge Stranded (#6, #8, #10) Low Voltage Wire.

OVERVIEW:

- The purpose of this document is to explain the correct method, tools and practice to ensure the field wire splices are installed correctly.
- This is extremely important because cut strands of the .010" wire will increase the resistance of the wire and increase voltage loss, thus delivering less voltage to the lighting fixtures that will undermine the performance of the lighting system.
- Heat Shrink Insulator must be installed using methods and tools to release the internal sealant, collapse the insulator and seal the splice connection from the elements.

Note: Wire is designed to meet a specific requirement for a particular application. In the case low voltage lighting, the wire is both direct burial and sunlight resistant and rated for 30 volts. The flexibility of the wire, ease of use, voltage carrying capacity and construction specific to this application, has made this wire the standard for low voltage lighting installations for over fifty years.

Since electricity flows on the outermost surface of a wire, low voltage wire bundles different quantities of .010” thick annealed and tinned copper conductor strands to increase the surface area of the wire to better carry the low voltage power. These .010” strands are bundled together to make the different gauge wires. (see below chart labeled STRANDING) **FOR THIS REASON, IT IS EXTREMELY IMPORTANT THAT AN INSTALLER MAKE CERTAIN WHEN MAKING ANY SPLICE OR CONNECTION THAT NONE OF THE STRANDS OF THE WIRE ARE INADVERTANTLY CUT. CUT STRANDS SIGNIFICANTLY DEMINISH THE VOLTAGE CARRYING CAPACITY AND GAUGE OF THE WIRE AND WILL COMPRIMISE SYSTEM PERFORMANCE.**

Sizes and Dimensions:

Size AWG	Stranding	Insulation Min. Ave. Wall (Inches)	Normal Dimensions (Inches)	Resistance (Ohms/ft)
18/2	16/0.10"	.045"	.290" x .145"	.006385
16/2	26/0.10"	.045"	.320" x .160"	.004016
14/2	41/0.10"	.045"	.350" x .175"	.002525
12/2	65/0.10"	.045"	.390" x .195"	.00162
10/2	104/0.10"	.045"	.440" x .220"	.00108
8/2	168/0.10"	.060"	.575" x .285"	.00064



You need the correct tool to strip # 8 AWG STRANDED wire correctly. (Note: always use a blade set one AWG size larger when stripping stranded wire) **USE IDEAL Stripmaster # 45-099 fitted with L-8763 Blade set** (i.e. #8 .198" ID, #10 .167" ID, #16 .062" ID and #18 .055" ID.) when stripping #8 AWG stranded wire. (Cast Part # CASTRIP2)

Note: Keep tool well oiled, make sure nuts and screws of tool are snug.

If wire IS COLD HEAT UP WIRE WITH A HEAT GUN TO SOFTEN THE INSULATION PRIOR TO STRIPPING



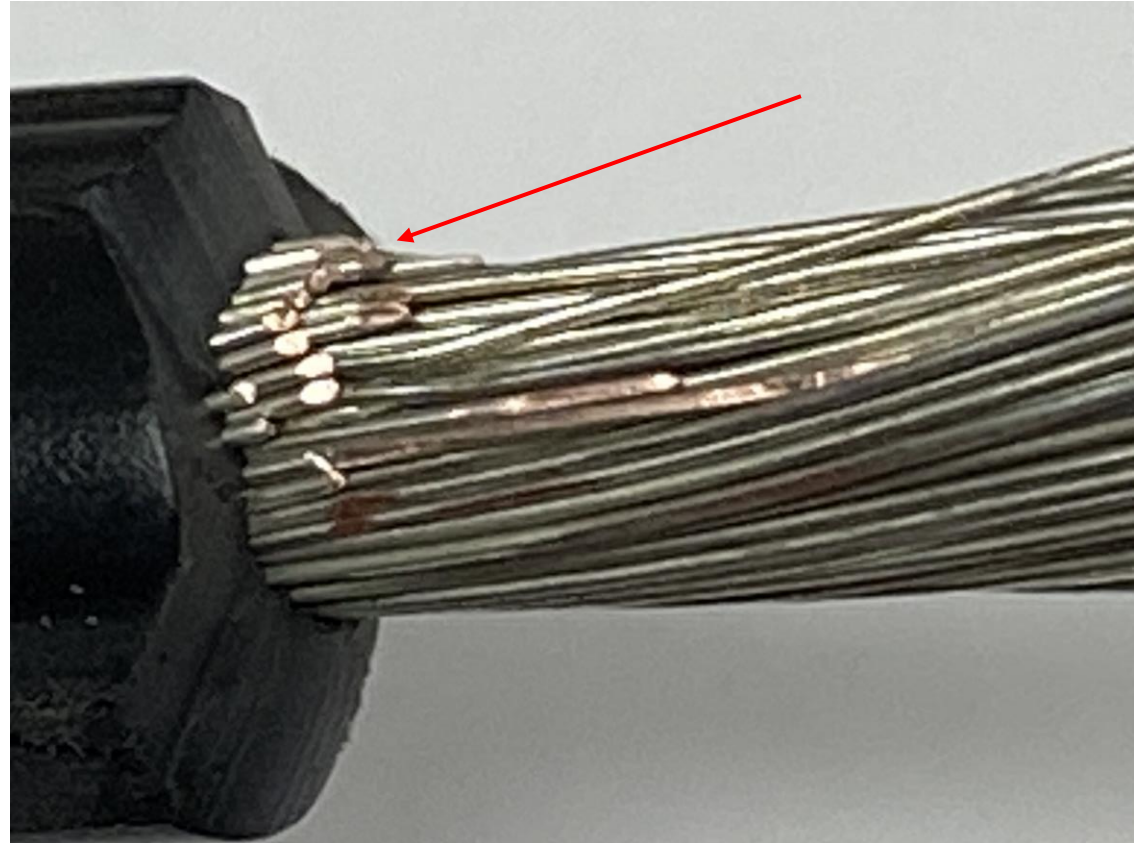
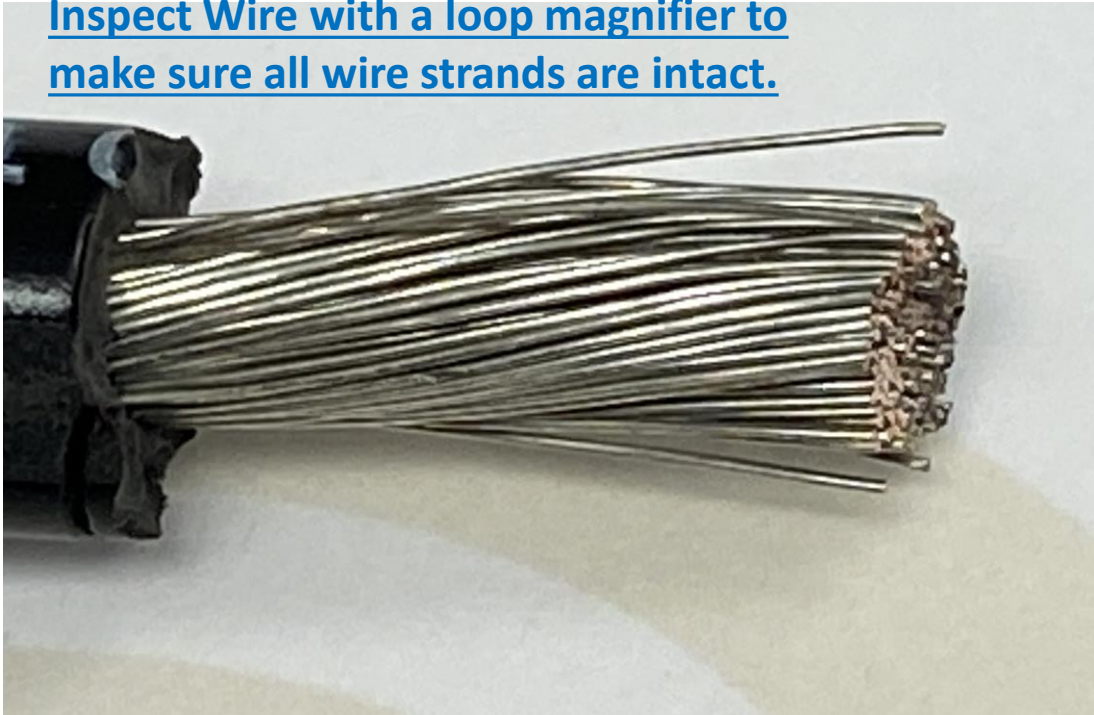
**IT IS EXTREMELY IMPORTANT
THAT NO 0.10" WIRE STRANDS
ARE CUT WHEN MAKING FIELD
SPLICE CONNECTIONS.**



UNACCEPTABLE wire insulation removal: Notice: Below has 15 cuts strands of the 168 strands that make up #8 Gauge wire. This alone considering the other side of the butt splice crimp has no strands cut will result in a loss of .0829% OF THE CARRYING CAPACITY OF THE WIRE, almost 10% !! **If this occurs during multiple splices on a several thousand-foot wire run, the wire run will be compromised.**

Perfect insulation removal, no strands cut.

**Inspect Wire with a loop magnifier to
make sure all wire strands are intact.**



Example of a GREAT pneumatic wire crimping tool.



FEK50 Pneumatic Crimping Tool for Compression Lugs and Related Terminals

\$995.00 USD

SKU FEK50

Quantity
1

Add to cart

Item In Stock. Want it Tuesday, 22nd June? Order within

1 DAY 04 HRS 38 MINS 11 SECS

Select Next Day Air at Checkout

Share this:



Description

Cross References

Documents

Videos

FEK50 Pneumatic Crimping Press - 2.5 Ton Output Force



PART#
RN-8D

RN-8D - Crimping Die for Compression Cable Lugs - 8 AWG - Single Indent

\$39.00 USD

SKU RN-8D

Quantity
1

Add to cart

Item In Stock. Want it Tuesday, 22nd June? Order within

1 DAY 04 HRS 37 MINS 00 SECS

Select Next Day Air at Checkout

Share this:



Description

Cross References

Documents

Videos

8 AWG Compression Lug/Non Insulated Terminal Crimping Die



8 AWG
(10.00mm²)



Use only a #8 AWG non insulated, Seamless, Tin Coated, Barrel, Butt Crimp, Splice Connection.
LENGTH .832. I.D. of crimp cavity .181". OD of crimp .276"

Use correct pressure and tooling to adequately make crimp splice connection.

1. Crimp #8 Model # **CLWSB8B** (250 pcs bag)
2. ½" Heat Shrink 50-foot Package delivered in 2-foot sections
CLEAR Model # **CHS1250C**
3. ¾" Heat Shrink 20-foot Package delivered in 2-foot sections
BLACK Model # **CHS3420**

- Keep Polarity (i.e. writing side of wire to writing side of wire together when making splice.)
- Offset crimps 6" or better from one another which makes wire splice connection diameter smaller and keeps the splices apart from one another.
- Use Heat Shrink ½" with internal sealant over crimp.
- **MAKE sure clean and DRY splice connection.** Trapped moisture will corrode the connection over time. Use heat gun to dry wire prior to inserting into crimp.



Shown below the ½” Heat shrink Insulator (Clear) for both crimp splices and just below is the ¾” that will be used to encase both splices and the #8-gauge wire. The ¾” will act to further protect the splice connections. ALL heat shrink has internal sealant. NEVER USE A TORCH TO COLLAPSE HEAT SHRINK AS IT WILL BURN THE MATERIAL AND COMROMISE THE SPLICE. USE ONLY ELECTRIC HEAT GUN.





Starting at the center of the splice turn the wire to evenly heat the heat shrink and work your way to the ends. This helps remove any trapped air and moisture.



Heat Shrink when heated properly will release internal sealant which can be seen at the ends of the splice as shown.

Clear material allows installer to see the fully sealed (with internal sealant) crimp connection (above).

Application of the ¾" heat shrink splice Covering

ALLOW CONNECTION MINIMUM OF THREE MINUTES
TO COOL DOWN BEFORE INSTALLING

AGAIN start heating heat shrink from the center
working towards the end so you do not trap any air.

Done

