INSTALLATION INSTRUCTIONS

GREEN HORNET®

G5N

100% Made in USA

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I. Product Introduction

The **Next Generation Green Hornet** has been updated and advanced to simplify installation and increase capacity. The new design implements a bottom slack basket and splice trays that can be customized to the needs of the architecture. The **G5N** uses Channell's Universal Splice Tray to accommodate single fiber splicing, ribbon splicing, Engineered Tap/PLC splitters, and a 16-port bulkhead. Fully loaded with splice holders on each of the Universal Splice Trays 144 fibers can be single spliced inside this closure and 192 fibers if ribbon splicing is performed.

24 Fiber Tray

36 Fiber Tray

Ribbon Splice Tray

Splitter Tray

II. Tools Recommended

- Safety glasses
- Gloves
- Other Personal Protective Equipment as required
- Electrician scissors
- Side-angle cutters
- 216 Tool (can wrench) 
- Cable knife
- Tape measure
- Rotary Buffer Tube Ringer
- Mid-Span Access Tool
- Cleaning solvent/degreaser
- Splicing equipment

The Next Generation **Green Hornet G5** closure is available in two different base styles.

Option One is the Branch Base option that has a Figure-8 hole for main feeder cables, a single Branch Port for lateral cables up to .8" OD and eight Drop Ports for cables up to .45" OD.

Option Two is the Terminal base that has a Figure-8 hole for main feeder cables and twelve Drop Ports for cables up to .45" OD.

III. Installation Kit

- 2 – 9”x 5mm transition tubes
- 2 – 99% alcohol wipes
- 8 – 4” black zip ties for trays
- Blue felt for buffer tubes
- ¼”- 20 bolt and washer for bracket installation when needed
- 12 fiber single splice holder
- Three position splitter holder
- Bonding and grounding kit (optional)

IV. Cable Preparation

A. For mid-span access

1. Create a loop in the cable that will allow for ring cuts on both sides of the loop. The opening of the cable should be 96” total.
2. At the center of the loop remove 4” of sheath from the cable exposing the buffer tubes and locate the pull strings used to rip the sheath.
3. If possible, try to locate and center the RO, reverse oscillation, point of the cable and make this the center of the loop. This will allow for easier unwrapping of the buffer tubes.
4. Make a ring cut on both sides of the loop 48” from the center of your loop.

5. Notch the sheath with a pair of electrician scissors where the pull string is located to help start the cutting of the sheath with the pull string.
6. Cut the pull strings in half and use each pull string to cut through the sheath on both sides down to the ring cut made in step 4 and cut the pull strings cleanly away from the cable.
7. Remove the sheath and any binder cords, aramid yarn, or water-swellable tape that may be on the buffer tubes.
8. Based on Engineering design, identify which buffer tube will be used at this time as the feeder and carefully unwrap from the group using the Reverse-Oscillation Point to assist with counter-wraps. Separate this buffer tube or ribbon all the way back to the sheath opening.
9. Utilizing the Reverse-Oscillation Point (or counter-wrap) unwrap the central strength member, if present, keeping all other buffer tubes wrapped up neatly.
10. Cut both sides of the central strength member 5" from the sheath opening. These will be trimmed down during cable installation.

B. For Cable Ends

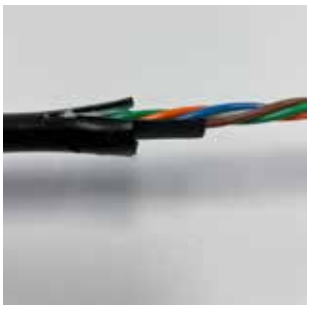
1. Measure the cable end to be opened with at least 48" of buffer tube remaining.
2. Make a ring cut where the sheath will be removed, and the buffer tubes will be exposed.
3. Remove two inches of sheath from the end of the cable.
4. Notch the sheath where the pull strings are located to assist with the sheath opening.
5. Pull both pull strings from the end of the cable down to where the ring cut was made and cleanly cut away the strings at the sheath opening.
6. Remove the sheath and any binder cords, aramid yarn, or water-swellable tape that may be present in the cable.
7. If present, unwrap the central strength member from the end of the cable back to the sheath opening keeping all buffer tubes cleanly wrapped together.
8. Cut the central strength member 5" from the sheath opening. This will be trimmed down during cable installation.

V. Shield Bond Connector Installation

The Shield Bond Connectors are designed to make a stable and low resistance electrical connection between communications cables of .80" diameter or less and a conductor such as a strap, wire, or braid.

1. At your ring point, remove outer sheath and cut the armor shield flush with the cable opening.
2. Using the pull strings or tabbing shears create a 1" (25 mm) slit on both sides of the sheath, to ease insertion and to avoid buffer tube damage.
3. When using the Shield Bond Connectors on single-sheath cable, insert the Pair Saver insulating shoe between the core wrap and the shield.
4. Insert connector base between shield and buffer tubes until "connector stops" meet outer sheath. Tap sheath above connector base to set teeth.
5. Install the top of the shield connector and secure it with one of the nuts provided. Torque the nut to 35-45 inch-lbs. (4.0-5.2 kgm) with a company-approved tool
6. The bond braid or other grounding or bonding hardware should be installed above the first nut and secure it with the additional nut.

Note: Use a company approved tool to achieve the torque requirement specified.



VI. Main Cable/Figure-8 Grommet Selection

If Mid-Span Access, carefully feed the buffer tube(s), with sheath removed, through the figure-8 shaped port of the enclosure and assure that no tube is excessively bent. If cable ends, feed the buffer tube(s) through the appropriate port of the enclosure.
There are two types of Figure-8 grommets that may be included with the enclosure pinned and serrated. See your local Channell Salesperson to determine which grommet is best for your application.

Determine the appropriate Figure-8 grommet to install based on cable diameter. The cable diameter should be within the parameters of the hole size for the correct grommet.

PART #	CABLE SIZE	QUANTITY
GR06106407-34	Cable Size .188-.250”	12 per kit
GR06106407-45	Cable Size .250-.313”	12 per kit
GR06106407-56	Cable Size .313-.375”	12 per kit
GR06106407-67	Cable Size .375-.438”	12 per kit
GR06106407-78	Cable Size .438-.500”	12 per kit
GR06106407-89	Cable Size .500-.562”	12 per kit
GR03106407-49	Serrated Grommet, Cable Size .4-.9”	12 per kit
GR03106407-47	Serrated Grommet, Cable Size .4-.7”	12 per kit

Example of Using Correct Amount of Channell Lubrication

Note-Only **Channell provided lubricant in conjunction with the correct grommet will create an air/watertight seal. Use of any other lubricant will nullify the sealing integrity of the enclosure and product warranty.*

VII. Installation of Main Grommet

***Serrated grommet has rings that will need to be **CUT OUT** based on the cable diameter. This is determined with the measuring tape included with this type of grommet.*

1. No electrical tape or other material should be placed on the cable where it will contact the grommet. Doing so will create a leak.
2. Apply a small amount of Channell lubricant to the entire outside and vertical slit of the grommet. The surface should appear wet but not excessively so. The amount of lubricant used directly relates to the amount of time it will take to create a permanent seal. With the right amount, the grommet will seal within 10-15 minutes. More time will be needed if excessive lubricant is used.
3. If armored cable is used and a ground bond is required, it should be installed after the cable is through the base of the closure but before the grommet is installed.
4. Place grommet around cable, leaving about 1/2” of sheath above the grommet if dielectric cable is used. 1 1/2” if armored cable requiring grounding.

5. Use steady downward pressure to sink the grommet into the Figure-8 port. Continue pressure until grommet hits the bottom stop of the port. The grommet will sit below the surface if seated properly.
6. Verify that the entire surface of the grommet is level and neither side of the vertical slit is higher than the other.
7. Wipe off any excess lubricant from the base surface using isopropyl alcohol wipes included.
8. Attach the central strength member to the CTM and trim off any excess strength member flush with the top of the clip.
9. Allow to dry before tension is placed on the cable.

VIII. Branch Cable Grommet Installation

GR03106161 Serrated Grommet, Hole Size .4-.8”

Serrated grommet has rings that will need to be **CUT OUT** based on the cable diameter. This is determined with the measuring tape included with this type of grommet. **Same step as the main grommet

1. No electrical tape or other material should be placed on the cable where it will contact the grommet. Doing so will create a leak.
2. Apply a small amount of Channell lubricant to the entire outside and vertical slit of the grommet. The surface should appear wet but not excessively so. The amount of lubricant used directly relates to the amount of time it will take to create a permanent seal. With the right amount, the grommet will seal within 10-15 minutes. More time will be needed if excessive lubricant is used.
3. Face vertical slit towards the outside of the enclosure.
4. If armored cable is used and a ground bond is required, it should be installed after the cable is through the base of the closure but before the grommet is installed.

5. Place grommet around cable, leaving about 1/2” of sheath above the grommet if dielectric cable is used. 1½” if armored cable requiring grounding.
6. Use steady downward pressure to sink the grommet into the Branch port. Continue pressure until grommet hits the bottom stop of the port. The grommet will sit below the surface if seated properly.
7. Verify that the entire surface of the grommet is level and neither side of the vertical slit is higher than the other.
8. Wipe off any excess lubricant from the base surface using isopropyl alcohol wipes included.
9. Attach the central strength member to the CTM and trim off any excess strength member flush with the top of the clip.
10. Allow to dry before tension is placed on the cable.

IX. Bonding and Grounding of Installed Cable

1. When armored cable is used and the bond device has been installed on each cable the cables will need to be strapped to the Ground Post that is embedded in the base of the **G5N**.
2. Starting with the cable that is furthest from Ground Post install the braided ground strap (using an eyelet) to the post of the ground bond on the cable and secure with the nut provided with the ground bond.
3. Use one eyelet for each of the cables that are bonded securing them with the nuts from the ground bond kit.
4. With the last eyelet of the braided strap attach the strap under the washer and nut of the ground post that is embedded into the base of the closure.
5. Tighten and secure each nut on every connection to the specific torque described in the bonding and ground section.

X. Strength Member Tie Down for Main Cable and Branch Cable

The strength member should be tied down for any cable installed into either the main, Figure-8 grommet or Branch grommet.

1. In the previous step there was about 5” of strength member left. At this point, line up the strength member with the top, inside edge of the strength member holder and cut the strength member to that length.
2. With a 7/16” nut driver loosen or remove the bolt and washer of the strength member holder and slide the strength member of the cable under the washer.
3. Re-tighten the bolt and washer.

XI. Splice Tray Preparation

1. For mid-span access of buffer tube, separate the intended buffer tube used at this location according to engineering.
2. Secure the buffer tube(s) to the slack basket under the splice trays with a zip tie.
3. Take the buffer tube(s) needed and route them around the slack basket and exit out the opposite side from where they came in.
4. Route that tube up to the appropriate splice tray going around the tray stalk.
5. Using a felt tip marker, make a mark on the buffer tube(s) at the point of the splice tray before reaching the storage area of the tray. (About ½” in)
6. Using preferred mid-span access tool, remove all buffer tube material between marks to expose the fiber.
7. If a tail is being installed, mark the buffer tube at the same point as would be done for a mid-span access. Use a ringing tool to remove buffer tube at your mark.

8. Clean and dry all fiber thoroughly before applying the blue felt padding.
9. Using felt padding provided, wrap a single layer around the buffer tube just below the point of tube removal. This will prevent the buffer tube from sliding into or out of the splice tray.
10. With two cable ties (provided) secure the felt wrapped buffer tube(s) into the tray on both sides.
11. Splice according to engineering design.
12. Wrap all spliced fiber up first and then pass-through fibers from expressed tubes and then wrap any cut fiber that was not spliced.
13. Place plastic cover on splice tray to protect any fibers that are in the tray.

XII. Slack Storage

All buffer tubes that are not being used at this location should be wrapped up neatly in the slack basket below the splice trays. Secure the wraps of buffer tubes with cable ties.

XIII. Drop Cable Installation

Measure the outside diameter of utilized drop to determine the correct grommet size.

Note: For flat drop cables, the sealing grommet labeled 3-4 (smallest available) is to be used.

Channell Drop grommets to seal one cable each

Note-Only Channell provided lubricant in conjunction with the correct grommet will create an air/watertight seal. Use of any other lubricant will nullify the sealing integrity of the enclosure and product warranty.

PART #	CABLE SIZE	QUANTITY
GR06116101-02	Cable Size .062-.125”	12 Cards, 6 grommets per card
GR06116101-34	Cable Size .188-.250”	12 Cards, 6 grommets per card
GR06116101-45	Cable Size .250-.313”	12 Cards, 6 grommets per card
GR06116101-56	Cable Size .313-.375”	12 Cards, 6 grommets per card
GR06116101-67	Cable Size .375-.438”	12 Cards, 6 grommets per card
GR06116101-78	Cable Size .438-.500”	12 Cards, 6 grommets per card

1. Remove the reusable plug from the base in the port where the cable is to be installed.
2. No electrical tape or other material should be placed on the cable where it will contact the grommet. Doing so will create a leak.
3. If the drop cable being installed has a tracer wire, this wire must be stripped back so that it is completely outside of the closure after grommet installation.

4. Sand the excess material left after removing tracer wire.

5. Insert the cable through the base from the outside. Place the sealing grommet over the end of the cable and slide along the length of the cable until ½" of sheath is sticking out of the top of the grommet.
6. Lubricate the outside of the sealing grommet with the lubricant provided and wipe a small amount of the lubricant inside of the drop port you are installing into to assist with insertion.
7. Insert the drop grommet into the terminal base, as shown.

8. Press firmly down on the top of the grommet until the grommet is sitting just below the surface of the base. If necessary, use a blunt tool like a screwdriver to go around the top surface of the grommet and compress the grommet until it is fully seated.

9. The sealing grommet is properly installed when the top surface of sealing grommet is sitting slightly below top surface of terminal base.
10. Make sure to remove any excess lubricant from around the base using an alcohol wipe.
11. Once the drop cable has been installed correctly into the base of the **G5N** the fiber or buffer tube can be routed to the appropriate splice tray or adapter.
12. Remove the clear cover of the splice tray the fiber will be installed into.
13. Secure the buffer tube or fiber to the splice tray and route around the tray to the correct length for splicing. If a connector is installed on the end of the drop cable leave a couple of inches of slack in the fiber before plugging into the adapter to prevent tension on the connector and fiber.
14. If splicing a pigtail on the end of the drop utilize one of the splice trays below the adapter tray.
15. First, clean the connector of the pigtail and plug it into the port assigned by engineering.
16. Route the pigtail down to the splice tray using one of the 5mm tubes provided in the set-up kit and splice according to engineering.
17. Install clear cover back on the splice tray to protect all the fibers and splices.

XIV. Closing the G5N Enclosure

1. Using the orange, Fiber Optic Sticker adhered to the outside of the dome line up the ¼" hole in the side wall of the base with the sticker and slide the dome down over the trays and slack basket being careful not to snag or smash any fiber or buffer tubes inside.
2. Wrap the dome clamp around the edge of where the dome and base meet.
3. Latch the lock of the clamp and press closed until the clamp is fully sealed and secure around the dome and base.

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