ASSEMBLY, INSTALLATION, AND REMOVAL OF CONTACTS AND MODULES
FOR 20/26 GHz COAXIAL CONTACTS AND MODULES

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20/26 GHZ COAXIAL RECEIVER CONTACT ASSEMBLY

PART # 610 102 109 FOR STRIPFLEX 142B, OR M17/60-RG142

610 102 116 FOR M17/84 RG-223

TOOLS REQUIRED
Crimp Tool, Part # 910 101 124

ASSEMBLY INSTRUCTIONS
1. Strip wire and point center conductor (Figure A).

2. Slide crimp ring over wire and flair braid by rotating dielectric (Figure B).
   NOTE: Remove mylar foil on stripflex 142 cable.

3. Insert the barrel of the threaded crimp nut between the braid and dielectric, positioned so that the end of the cable dielectric is flush with the end of the threaded crimp nut (Figure C).

4. Using the Crimp Tool, Part # 910 101 124 (Figure D), slide the crimp ring against the shoulder of the threaded crimp nut and crimp using the larger hex position (Figure E).

5. Install and tighten the shield conductor assembly to 7-10 in-lbs [0.79-1.13 Nm] (Figure F).

6. Apply ¼" [6.4 mm] diameter 1" [25.4 mm] long shrink tubing over crimp ring up to shoulder of threaded crimp nut and shrink (Figure G).

*It is recommended to use the following cables to achieve certain frequencies:

StripflexTM 142B  26 GHz
M17/84-RG223     12.4 GHz
M17/60-RG142     8 GHz

For the most current information available, visit www.vpc.com.
20/26 GHZ COAXIAL ITA CONTACT ASSEMBLY

PART # 610 102 110 FOR STRIPFLEX 142B OR M17/60-RG142

610 102 117 FOR M17/84-RG223

TOOLS REQUIRED
Crimp Tool, Part # 910 101 124

ASSEMBLY INSTRUCTIONS
1. Strip wire and point center conductor (Figure A).

2. Slide crimp ring over wire and flair braid by rotating dielectric (Figure B).
   NOTE: Remove mylar foil on stripflex 142 cable.

3. Insert the barrel of the threaded crimp nut between the braid and dielectric, positioned so that the end of the cable dielectric is flush with the end of the threaded crimp nut (Figure C).

4. Using the Crimp Tool, Part # 910 101 124 (Figure D), slide the crimp ring against the shoulder of the threaded crimp nut and crimp using the larger hex position (Figure E).

5. Install and tighten the shield conductor assembly to 7-10 in-lbs [0.79-1.13 Nm] (Figure F).

6. Apply ¼” [6.4 mm] diameter 1” [25.4 mm] long shrink tubing over crimp ring up to shoulder of threaded crimp nut and shrink (Figure G).

*It is recommended to use the following cables to achieve certain frequencies:

<table>
<thead>
<tr>
<th>Cable Type</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>StripflexTM 142B</td>
<td>26 GHz</td>
</tr>
<tr>
<td>M17/84-RG223</td>
<td>12.4 GHz</td>
</tr>
<tr>
<td>M17/60-RG142</td>
<td>8 GHz</td>
</tr>
</tbody>
</table>

Dimensions shown: [millimeters] inches
20/26 GHZ COAXIAL RECEIVER CONTACT INSTALLATION AND REMOVAL

PART # 610 102 109 / 610 102 116 / 610 102 119 / 610 102 135

TOOLS REQUIRED

\( \frac{5}{64} \) Allen wrench or Phillips screwdriver
20/26 GHz Receiver and ITA Extraction Tool, Part # 910 112 117

CONTACT INSTALLATION INSTRUCTIONS

1. Assemble the contact to the respective wire.
   
   NOTE: For more information concerning the process of crimping the contact please see contact assembly instructions in Section 1 of this User’s Manual.
   
   NOTE: When using 20/26 GHz SMA (610 102 135) it is recommended that the SMA patchcord be screwed on to the contact prior to installing it in the module.

2. Insert the tip of the contact into the module. Before completely inserting the contact, make sure the opening on the retaining ring is underneath the contact. This will cause the retaining ring to center around the contact.

3. Center the retaining ring’s leading edge and insert the contact.

4. As you press in and meet resistance, gently wiggle the contact in an approximate circular motion while pressing in. Once in place, pull the wire slightly to ensure the contact is seated.

CONTACT REMOVAL INSTRUCTIONS

1. Remove the module from the receiver frame.
   
   NOTE: For more information concerning the process of removing the module from the receiver frame, see module installation and removal instructions in Section 4 of this User’s Manual.

2. Use a \( \frac{5}{64} \) Allen wrench or Phillips screwdriver to remove the two 2-56 screws located at the top and bottom of the module.

3. Grasp the module halves and apply force in opposite directions, rocking the ends of the module while slightly pulling the top of the module away from the mating bottom section, until separated. Be sure to open both sides of the module simultaneously or contacts could be damaged.

4. Place the 20/26 GHz Receiver/ITA Extraction Tool, Part # 910 112 117 (Figures A/B), over the contact to be removed/replaced. Use care to keep the tool perpendicular to the surface of the module, otherwise the tool or the contact could be bent.

5. Once the extraction tool is seated and the retaining ring on the contact are compressed, push the plunger. The contact will be pushed out of the rear of the module.


6. Replace the module cap using both hands to push the separated halves together. Replace and tighten the module retaining screws to a maximum torque of 2 in-lbs [0.23 Nm].

   NOTE: The process shown here uses standard/90 series modules. The same process is used for modules from other series.

   NOTE: If you are using a hybrid module, you may need to reference the User’s Manual for the other contact type for extraction instructions.
20/26 GHz COAXIAL ITA CONTACT INSTALLATION AND REMOVAL

PART # 610 102 110 / 610 102 117 / 610 102 118 / 610 102 134

TOOLS REQUIRED
20/26 GHz Coax Receiver/ITA Extraction Tool, Part # 910 112 117

CONTACT INSTALLATION INSTRUCTIONS
1. Assemble the contact to the respective wire.
   NOTE: For more information concerning the process of crimping the contact please see contact assembly instructions in Section 2 of this User’s Manual.
   NOTE: When using 20/26 GHz SMA (610 102 134) it is recommended that the SMA patchcord be screwed on to the contact prior to installing it in the module.

2. Insert the tip of the contact into the module. Before completely inserting the contact, make sure the opening on the retaining ring is underneath the contact. This will cause the retaining ring to center around the contact.

3. Center the retaining ring’s leading edge and insert the contact.

4. As you press in and meet resistance, gently wiggle the contact in an approximate circular motion while pressing in. Once in place, pull the wire slightly to ensure the contact is seated.

CONTACT REMOVAL INSTRUCTIONS
1. Remove the module from the ITA frame.
   NOTE: For more information concerning the process of removing the module from the ITA frame, see module installation and removal instructions in Section 5 of this User’s Manual.

2. Place the 20/26 GHz Receiver/ITA Extraction Tool, Part # 910 112 117 (Figures A/B), over the contact to be removed/replaced. Use care to keep the tool perpendicular to the surface of the module as not to bend the tool or the contact to be removed. Rotate the tool slightly while pushing it into the counterbore on the mating side of the module.

3. Once the extraction tool is seated properly and the tabs on the retaining ring are compressed, push the plunger. The contact will be pushed out of the rear of the module.

Figure A. Extraction tool, Part # 910 112 117.


Figure B. Fully seat extraction tool before depressing.

NOTE: The process shown here uses standard/90 series modules. The same process is used for modules from other series.

NOTE: If you are using a hybrid module, you may need to reference the User’s Manual for the other contact type for extraction instructions.
20/26 GHZ COAXIAL STANDARD/90 SERIES MODULE INSTALLATION AND REMOVAL

TOOLS REQUIRED

\( \frac{3}{32} \) Allen Wrench

INSTALLATION INSTRUCTIONS

1. Place the module in the receiver or ITA until the upper and lower module screws touch the mating holes in the inner frame. Ensure that Position 1 is located at the top for systems in which the modules are oriented vertically or to the left for systems in which the modules are oriented horizontally.

2. Using a \( \frac{3}{32} \) Allen wrench, tighten the top screw 1 to 2 full revolutions, while pushing lightly against the face of the module.

3. Maintain this pressure while tightening the bottom screw 1 to 2 full revolutions.

4. Repeat this sequence until the module is seated. Torque the screw to 4 in-lbs \([0.45 \text{ Nm}]\).

REMOVAL INSTRUCTIONS

1. To remove, loosen the top screw 1 to 2 full revolutions. Loosen bottom screw 1 to 2 full revolutions.

2. Repeat this sequence until the module is separated from the receiver or ITA.

Note: For optimum performance and system longevity, distribute the contact load evenly throughout the module.

Figure A. Receiver Module.

Figure B. ITA Module.
20/26 GHz COAXIAL ICON MODULE INSTALLATION AND REMOVAL

TOOLS REQUIRED
Phillips Head Screwdriver

INSTALLATION INSTRUCTIONS
NOTE: The receiver strain relief plate or the ITA cover may need to be removed prior to installing or removing an iCon module. Please refer to the appropriate User’s Manual for instructions on how to perform these steps.

1. Place the module in the receiver or ITA until the upper and lower module screws touch the mating holes in the inner frame. Install modules such that Position 1 is located at the top of the ITA/receiver frame.

2. Using a Phillips head screwdriver, tighten the top screw 1 to 2 full revolutions, while pushing lightly against the face of the module.

3. Maintain this pressure while tightening the bottom screw 1 to 2 full revolutions.

4. Repeat this sequence until the module is seated. Torque the screw to 1.5 in-lbs [0.16 Nm].

REMOVAL INSTRUCTIONS
1. To remove, loosen the top screw 1 to 2 full revolutions. Loosen bottom screw 1 to 2 full revolutions.

2. Repeat this sequence until the module is separated from the receiver or ITA.

Note: For optimum performance and system longevity, distribute the contact load evenly throughout the module.
### CROSS REFERENCE TABLES

#### Receiver Contacts

<table>
<thead>
<tr>
<th>Receiver Contacts</th>
<th>90 Series Receiver Module</th>
<th>Icon Modules</th>
<th>Crimp Tool</th>
<th>Extraction</th>
</tr>
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<tbody>
<tr>
<td>610 102 109</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>610 102 116</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>610 102 119</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>610 102 135</td>
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#### Ita Contacts

<table>
<thead>
<tr>
<th>Ita Contacts</th>
<th>90 Series Ita Module</th>
<th>Icon Modules</th>
<th>Crimp Tool</th>
<th>Extraction</th>
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<tbody>
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20/26 GHZ CONTACT ELECTRICAL SPECIFICATIONS

**Electrical Specifications**

<table>
<thead>
<tr>
<th>Characteristic Impedance</th>
<th>50 Ohms</th>
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</thead>
<tbody>
<tr>
<td>Frequency Range</td>
<td>DC to 26 GHz</td>
</tr>
<tr>
<td>Contact Resistance</td>
<td>5 mOhms Max. Center Conductor</td>
</tr>
<tr>
<td></td>
<td>3 mOhms Max. Shield</td>
</tr>
<tr>
<td>Operating Voltage and Current</td>
<td>5 Amps DC Max. Continuous</td>
</tr>
<tr>
<td>Dielectric Withstanding Voltage (DWV)</td>
<td>800 V RMS Shield to center contact</td>
</tr>
<tr>
<td></td>
<td>1000 V RMS</td>
</tr>
<tr>
<td>VSWR</td>
<td>1.15 + 0.01(f)GHz</td>
</tr>
<tr>
<td>Insertion Loss</td>
<td>0.06x√f(GHz)dB</td>
</tr>
<tr>
<td>RF Leakage</td>
<td>-60 dB min. @ 2 - 3 GHz</td>
</tr>
<tr>
<td>Recommended Termination</td>
<td>Cable 142, 223, 303, 400</td>
</tr>
<tr>
<td></td>
<td>(use SF142B to achieve 26 GHz and RG223 for 12 GHz)</td>
</tr>
</tbody>
</table>

**Mechanical Characteristics**

| Cycle Life                    | 20,000           |
| Mating Force                  | 4 lbs max. [1.81 Kg] |

**Material**

| Outer Shield (ITA)            | Brass per ASTM - B16 |
|                               | Au per MIL-G-45204   |
| Outer Shield (RCVR)           | Brass per ASTM - B16 |
|                               | Au per MIL-G-45204   |
| Center Conductor (ITA)        | BeCu per ASTM - B196 |
|                               | Au per MIL-G-45204   |
| Center Conductor (RCVR)       | BeCu per ASTM - B196 |
|                               | Au per MIL-G-45204 over Cu per MIL-C-14550 |
| Retaining Ring                | BeCu per ASTM - B196 |
|                               | Ni per QQN - 290     |
| Contact Ring (RCVR)           | BeCu per ASTM - B196 |
|                               | Au per MIL-G-45204   |
| Dielectric                    | PTFE Fluorocarbon   |