ASSEMBLY, INSTALLATION, & REMOVAL OF CONTACTS & MODULES

MICRO COAX

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RECEIVER CONTACT ASSEMBLY

CONTACT PART # 610140101/102/103 (RG316/178/179)

TOOL PART # 910101131 KIT (RG178), 910101132 KIT (RG316/179), 910101135, 910121178, 910121179

1. Strip outer jacket (**Figure A**).
   ***NOTE:** Dimensions can be found in the chart below (**Figure G**).

2. Slide the ferrule onto the wire and fold braid back over ferrule (**Figure B**). Comb braid and make sure that it covers 50-100% of the smaller portion of the ferrule but does not reach past the shoulder. If using a nickel ferrule proceed to **Step 4**.

3. Strip the wire center conductor (**Figure C**).

4. Place contact center in solder fixture and solder wire center conductor into contact center conductor (**Figure D**). Clean. Contact center conductor and dielectric must touch **(Figure E**).

5. Calibrate the inspection depth gauge (**Figure F**), by loosening the dial face retaining screw until the dial face allows itself to be turned. Insert the calibration plug into base of gauge. While keeping constant pressure on the plug, adjust the dial by rotating it so that the pointer is at “0”. Re-tighten retaining screw. Adjust locating markers to “8” and “97”.

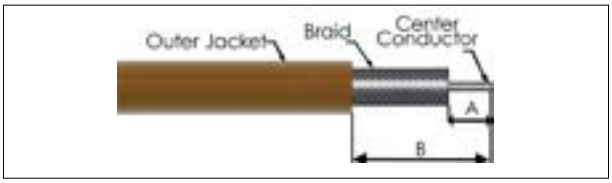

Figure A. Dimensions defined below in Figure G.

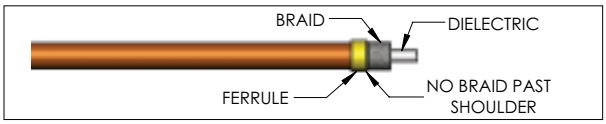

Figure B.

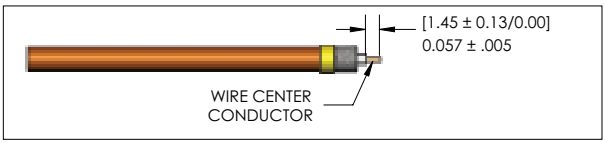

Figure C.

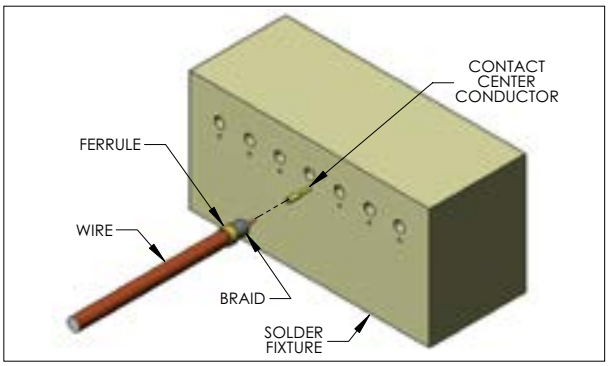

Figure D. Solder Fixture, part # 910121178.

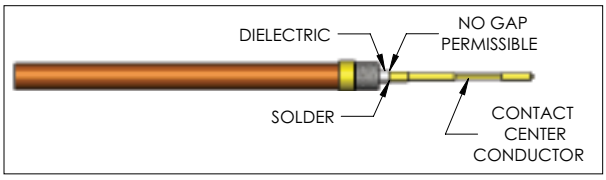

Figure E. Ensure contact center conductor and dielectric touch.

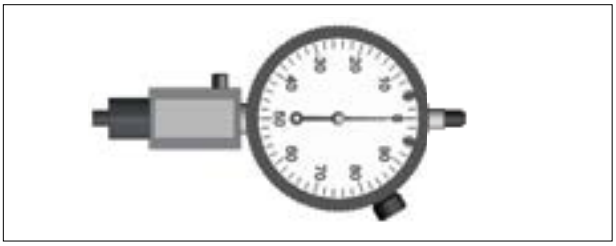

Figure F. Inspection Depth Gauge, Part # 910121179.

Figure G. Strip lengths.

Dimensions shown: [millimeters] inches

Contact P/N	Ferrule Finish	Wire Type	Strip ‘A’	Strip ‘B’
610140101	Nickel	RG-316	[1.45 ±.13/0.00] 0.057 ±0.005/0.00	[4.95 ±0.13/0.00] 0.195 ±.005/0.00
	Gold		No Center Strip	[4.83 ±0.13/0.00] 0.190 ±.005/0.00
610140102	Nickel	RG-178	[1.45 ±.13/0.00] 0.057 ±0.005/0.00	[4.70 ±0.13/0.00] 0.190 ±.005/0.00
	Gold		No Center Strip	[4.70 ±0.13/0.00] 0.185 ±.005/0.00
610140103	Nickel	RG-179	[1.45 ±.13/0.00] 0.057 ±0.005/0.00	[4.70 ±0.13/0.00] 0.185 ±.005/0.00
	Gold		No Center Strip	[4.83 ±0.13/0.00] 0.190 ±.005/0.00

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RECEIVER CONTACT ASSEMBLY (CONT'D)

CONTACT PART # 610140101/102/103 (RG316/178/179)

TOOL PART # 910101131 KIT* (RG178), 910101132 KIT* (RG316/179), 910101135, 910121178, 910121179

TOOLS REQUIRED

5/64 Allen wrench

6. Slide shield over center conductor until the shield stops flush (**Figure G**). Do not twist the shield conductor; twisting will cause the braid to bunch.

7. Check the flush dimension (**Figure H**) using the inspection depth gauge. Insert contact into gauge until contact stops. If gauge measures between "8" and "97," go to step 9. If the pointer is out of the range of the two markers, slide the ferrule to adjust. Repeat steps 1-7 if necessary.

8. Before using the crimp tool* (**Figure I**), you must ensure you have the correct the locator installed (**Figure J**). To replace, remove the 2 screws using a 5/64 Allen wrench and replace the existing locator in the die assembly(**Figure K**). Tighten the 2 screws.

9. Crimp using crimp tool. To ensure proper crimp position, press shield flush inside the locator (**Figure L**).

10. Perform precision ratchet action by opening and closing crimp tool fully several times. The tool cannot be opened without completing a cycle. Never attempt to disassemble tool. Never tighten or loosen stop nuts on back of tool.

11. Wire must not be allowed to pull on the center conductor during crimping (for example, long wire hanging down to floor). Ensure outer shield is flush with ferrule after crimping (**Figure M**).

12. Use the inspection depth gauge to verify the flush +.003"/ -.008" dimension as shown in step 8. If the dimension is out of range, repeat steps 1-10.

*NOTE: Crimp tool and parts are included with kit. Kit part number based on AWG (part numbers indicated above). Exact contents of each kit can be found online by part number at vpc.com.

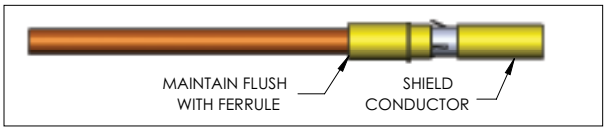

Figure G. Shield must be flush with ferrule.

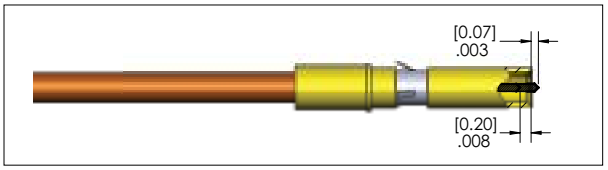

Figure H. Flush dimensions +.003"/ -.008" .

Figure I.

Figure J. p/n 910101135

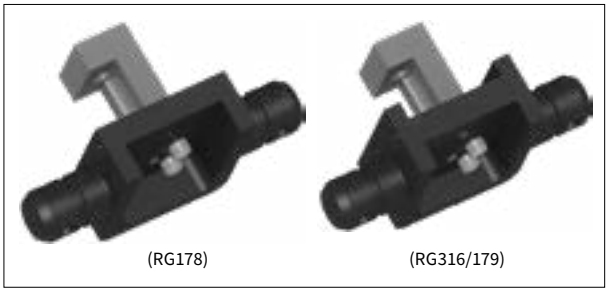

Figure K. Locator in die assembly.

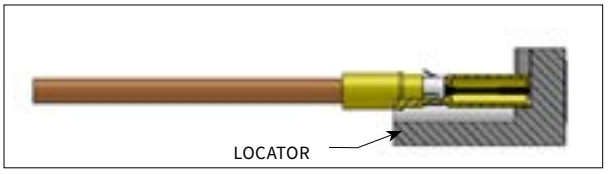

Figure L. Contact with locator.

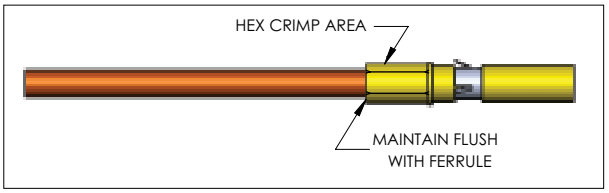

Figure M. Final assembly.

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RECEIVER CONTACT ASSEMBLY

CONTACT PART # 610140104 (RG316 DOUBLE-SHIELDED)

TOOL PART # 910121178, 910121179

1. Strip the outer jacket (**Figure A**) and tin the braid.

2. Perform second strip (**Figure B**). 0.17" [4.32] will be trimmed from the front of the wire to remove any solder build-up.

3. Place contact center conductor into soldering fixture (**Figure C**). Solder wire center conductor into contact center conductor and clean. Contact center conductor and dielectric must touch *(***Figure D***).*

4. Slide shield over the center conductor (**Figure E**).

5. Calibrate the inspection depth gauge (**Figure F**), by loosening the dial face retaining screw until the dial face allows itself to be turned. Insert the calibration plug into base of gauge. While keeping constant pressure on the plug, adjust the dial by rotating it so that the pointer is at "0". Re-tighten retaining screw. Adjust locating markers to "8" and "97".

6. Check the contact's flush dimensions (**Figure G**) by using the inspection depth gauge. Insert contact into gauge until contact stops. If the gauge reads between "8" and "97", go to the next step. If the gauge reads below the "97" marker, slide the shield to adjust. If the reads above the "8" marker, cut the strip off and repeat steps 1-5.

7. Solder the shield and clean. Make sure the shield does not move when soldering.

8. Recheck using the inspection depth gauge to verify the flush dimension using process in step 6. If the dimension is out of range, repeat steps 1-6.

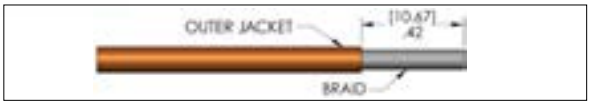

Figure A. Strip outer insulation to dimension shown.

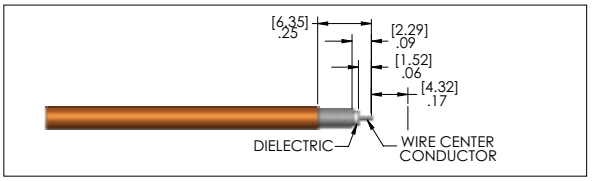

Figure B. Second strip will remove any solder build-up.

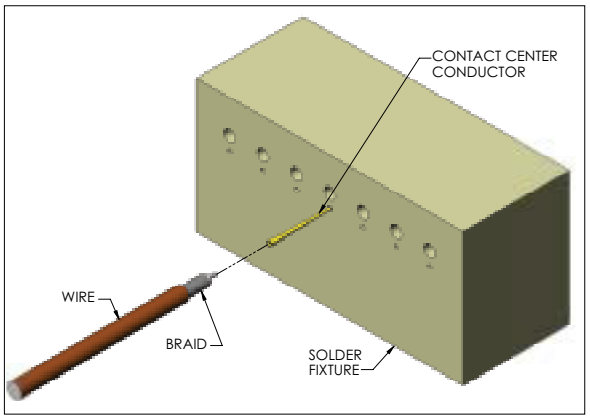

Figure C. Soldering Fixture, part # 910121178.

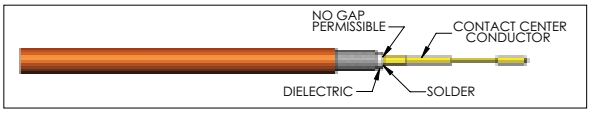

Figure D. Ensure contact center conductor and dielectric touch.

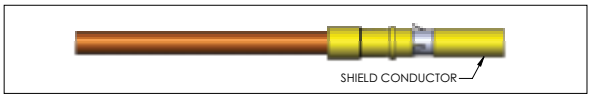

Figure E. Add shield.

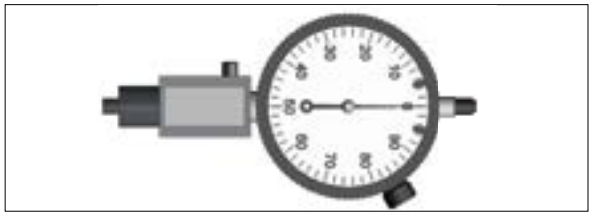

Figure F. Inspection Depth Gauge, Part # 910121179.

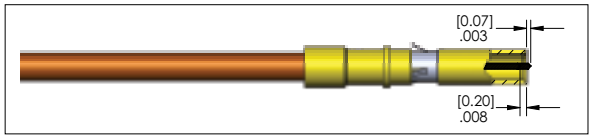

Figure G. Flush dimensions.

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CONTACT INSTALLATION AND REMOVAL- RECEIVER

CONTACT PART # 610140101/102/103/104

MODULE, TOOL PART # 510104267/306, 910112123

TOOLS REQUIRED
Phillips Head Screwdriver

INSTALLATION

1. Assemble the contact to the respective wire.
2. Insert the terminated contact into the back of the assembled module. The contact can only be installed from the back side. Once in place, pull the wire slightly to ensure that the contact is fully seated.

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

REMOVAL

1. Remove the module from the receiver frame.
2. Use a Phillips head screw driver to loosen 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 pull both sides of the module simultaneously or contacts could be damaged.
4. Place the extraction tool over the contact to be removed (**Figure A**). Use care to keep the tool perpendicular to the surface of the module, otherwise the tool or contact could be damaged.
5. Once the extraction tool is seated and the retaining tabs on the retaining ring are compressed (**Figure B**), push the plunger. The contact will be pushed out of the rear of the module.
6. Replace the module top-half using both hands to push the separated halves together. Replace and tighten the module 2-56 screws to a maximum torque of 1.5 in-lbs [0.169 Nm].

Figure A. Ensure that the tool is kept perpendicular to the module face to avoid damage to the contact or tool.

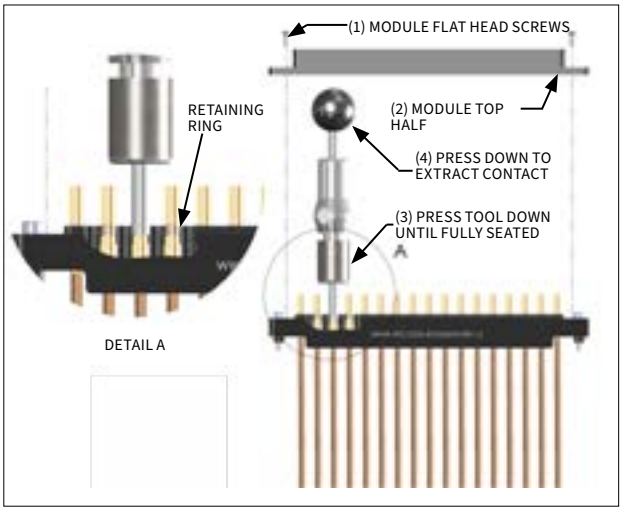

Figure B. Push the plunger only after the retaining tabs are compressed.

DO NOT DEPRESS THE PLUNGER ON THE BACK OF THE EXTRACTION TOOL UNTIL THE TIP OF THE EXTRACTION TOOL HAS FULLY SEATED INTO THE MODULE AND COMPRESSED THE RETAINING RING TABS ON THE CONTACT, OTHERWISE THE RETAINING RING COULD BE DAMAGED.

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CONTACT INSTALLATION AND REMOVAL- RECEIVER

CONTACT PART # 610140101/102/103/104

MODULE, TOOL PART # 510104270, 910112123

TOOLS REQUIRED

3/64 Allen Wrench

INSTALLATION

1. Assemble the contact to the respective wire.

2. Insert the terminated contact into the back (wiring side) of the assembled module. The contact can only go into one side. Once in place, pull the wire slightly to ensure that the contact is seated.

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

REMOVAL

1. Remove the module from the receiver frame.

2. Use a 3/64 Allen wrench to remove the 0-80 screws (**Figure A**).

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 pull both sides of the module simultaneously or contacts could be damaged.

4. Place the extraction tool (**Figure B**), over the contact to be removed. Use care to keep the tool perpendicular to the surface of the module, otherwise the tool or contact could be bent.

5. Once the extraction tool is seated and the retaining tabs on the retaining ring 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 .875 in-lbs [0.10 Nm].

Figure A.

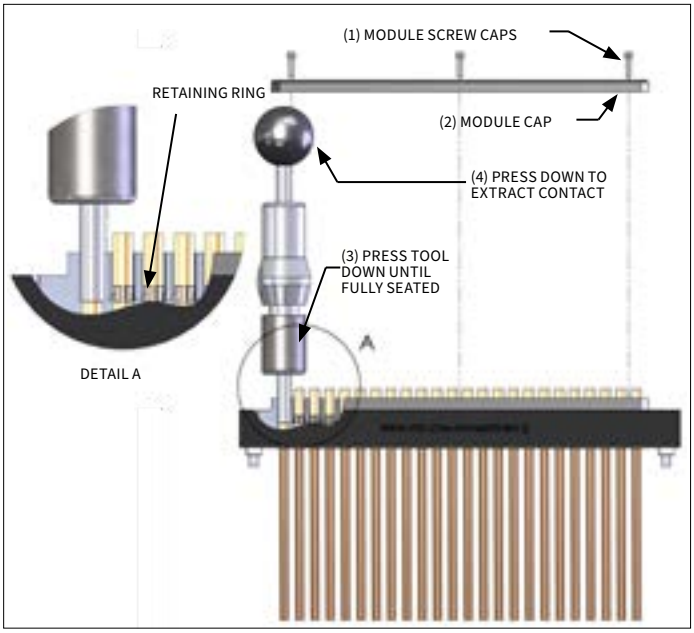

Figure B. Fully seat the extraction tool before depressing.

DO NOT DEPRESS THE PLUNGER ON THE BACK OF THE EXTRACTION TOOL UNTIL THE TIP OF THE EXTRACTION TOOL HAS FULLY SEATED INTO THE MODULE AND COMPRESSED THE RETAINING RING TABS ON THE CONTACT, OTHERWISE THE RETAINING RING COULD BE DAMAGED.

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ITA CONTACT ASSEMBLY

CONTACT PART # 610141101/102/103 (RG316/178/179)

TOOL PART # 910101131 KIT (RG178), 910101132 KIT (RG316/179), 910101139, 910121178, 910121179

1. Strip outer jacket and center conductor (**Figure A**). using dimensions can be found in the chart below **(Figure F)**.

2. Slide the ferrule onto the wire until it stops on outer jacket. Fold braid back over ferrule (**Figure B**). Comb braid and make sure that it covers 50-100% of the smaller portion of the ferrule but does not reach past the shoulder.

3. Place contact center conductor in solder fixture and solder wire center conductor into contact center conductor **(Figure C)**. Contact center conductor and dielectric must touch (**Figure D)**.

4. Calibrate the inspection depth gauge (**Figure E**), by loosening the dial face retaining screw until the dial face allows itself to be turned. Insert the calibration plug into base of gauge. While keeping constant pressure on the plug, adjust the dial by rotating it such that the pointer points to “0”. Re-tighten retaining screw. Adjust locating markers to “5” and “95.”

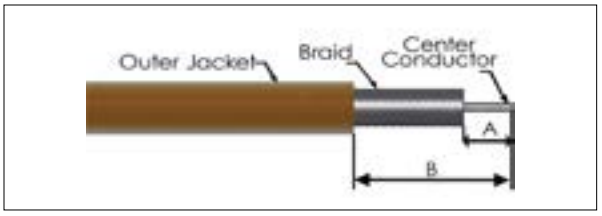

Figure A. Dimensions defined below.

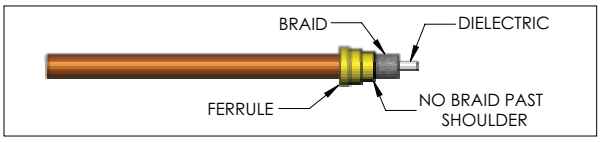

Figure B. Slide ferrule onto wire.

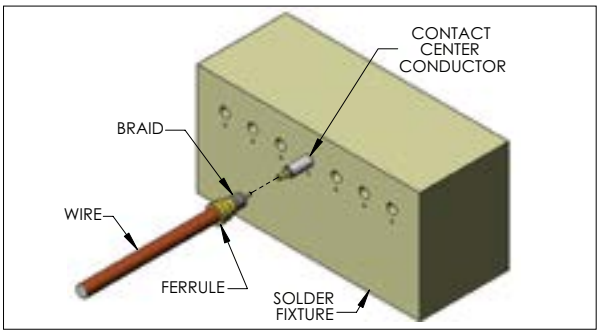

Figure C. Soldering Fixture, part # 910121178.

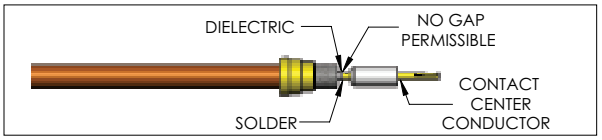

Figure D. Ensure contact center conductor and dielectric touch.

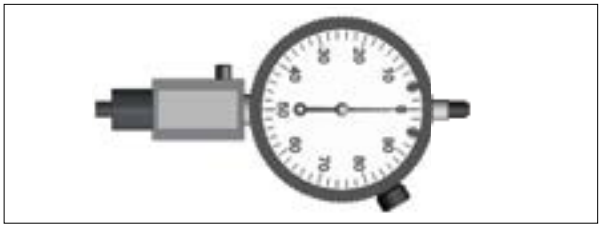

Figure E. Inspection Depth Gauge, part # 910121180.

Figure F. Strip lengths.

Dimensions shown: [millimeters] inches

Contact PN	Wire Type	Strip ‘A’	Strip ‘B’
610141101	RG-316	[1.45 ±0.13/0.00] 0.057 ± 0.005/0.00	[4.95 ±0.13/0.00] 0.195 ±.005/0.00
610141102	RG-178	[1.45 ±0.13/0.00] 0.057 ±0.005/0.00	[4.83 ±0.13/0.00] 0.190 ±.005/0.00
610141103	RG-179	[1.45 ±0.13/0.00] 0.057 ±0.005/0.00	[4.70 ±0.13/0.00] 0.185 ±.005/0.00

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ITA CONTACT ASSEMBLY (CONT'D)

CONTACT PART # 610141101/102/103 (RG316/178/179)

TOOL PART # 910101131 KIT (RG178), 910101132 KIT (RG316/179), 910101139, 910121178, 910121179

TOOLS REQUIRED

5⁄64 Allen wrench

5. Slide shield over center conductor until it stops flush (**Figure G**). Do not twist the shield; twisting will cause the braid to bunch.

6. Check the flush dimension (**Figure H**) with the inspection depth gauge. Insert contact into gauge until contact stops. If gauge measures between 5 and 95, go to Step 8. If the pointer is out of the range of the two markers, slide the ferrule to adjust. Repeat steps 1-6, if necessary.

7. Before using the crimp tool* (**Figure I**), you must ensure you have the correct the locator installed (**Figure J**). To replace, remove the 2 screws using a 5⁄64 Allen wrench and replace the existing locator in the die assembly (**Figure K**). Tighten the 2 screws.

8. Crimp using crimp tool. To ensure proper crimp position, slide shield over pin on the locator (**Figure L**).

9. Perform ratchet action by fully opening and closing crimp tool several times. The tool cannot be opened without completing a complete cycle. Never attempt to disassemble the tool. Never tighten or loosen stop nut on back of tool.

10. Wire must not be allowed to pull on the center conductor during crimping (for example, long wire hanging down to floor). Ensure outer shield is flush with ferrule after crimping (**Figure M**).

11. Use the inspection depth gauge to verify the .136" ± .005 dimension as shown in Step 7. If the dimension is out of range, repeat steps 1-10.

*NOTE: Crimp tool and parts are included with kit. Kit part number based on AWG (part numbers indicated above). Exact contents of each kit can be found online by part number at vpc.com.

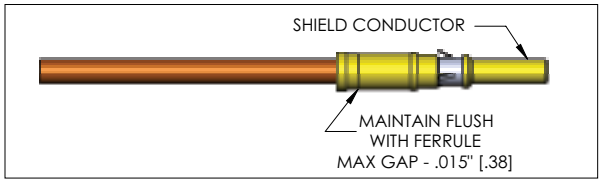

Figure G. Shield must be flush with ferrule.

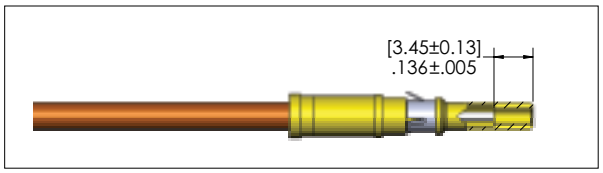

Figure H. Flush dimensions (.136" ± .005).

Figure I.

Figure J. p/n 910101139

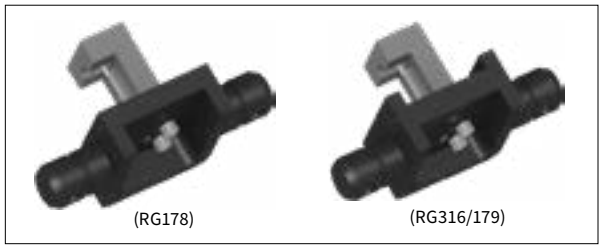

Figure K. Locator in die assemblies.

Figure L.

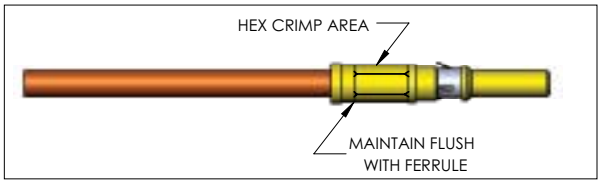

Figure M. Final assembly.

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ITA CONTACT ASSEMBLY

CONTACT PART # 610141104 (RG316 DOUBLE-SHIELDED)

TOOL PART # 910121178, 910121180

1. Strip the outer jacket (**Figure A**) and tin the braid.

2. Perform second strip (**Figure B**). 0.17" [4.32] will be trimmed from the front of the wire to remove any solder build-up.

3. Place contact center conductor into soldering fixture (**Figure C**). Solder wire center conductor into contact center conductor and clean. Contact center conductor and dielectric must touch (**Figure D**).

4. Slide the shield over the center conductor (**Figure E**).

5. Calibrate the inspection depth gauge (**Figure F**), by loosening the dial face retaining screw until the dial face allows itself to be turned. Insert the calibration plug into base of gauge. While keeping constant pressure on the plug, adjust the dial by rotating it such that the pointer points to "0". Re-tighten retaining screw. Adjust locating markers to "5" and "95".

6. Check the contact's flush dimensions with the inspection depth gauge (**Figure G**). Insert contact into gauge until contact stops. If gauge reads between "5" and "95", proceed to Step 7. If the pointer reads below the "95" marker, slide the shield to adjust. If the pointer reads above the "5" marker, cut the strip off and repeat steps 1-4.

7. Solder the shield and clean. Make sure the shield does not move while soldering.

8. Recheck using the inspection depth gauge and verify the flush dimensioning process in Step 6. If the dimension is out of range, repeat steps 1-6.

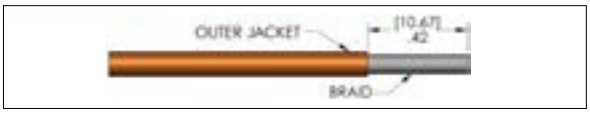

Figure A. Strip outer insulation to dimension shown.

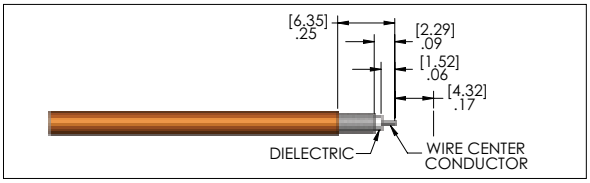

Figure B. Second strip will remove any solder build-up.

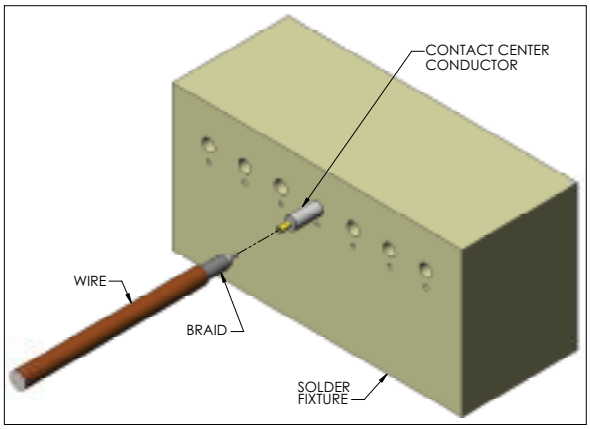

Figure C. Soldering Fixture, Part # 910121178.

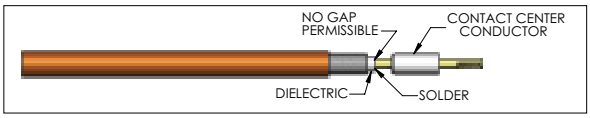

Figure D. Ensure contact center conductor and dielectric touch.

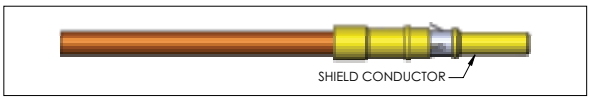

Figure E. Add shield.

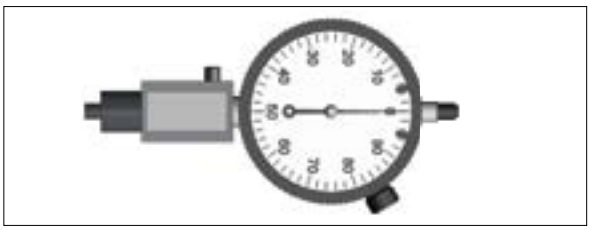

Figure F. Inspection Depth Gauge, part # 910121180.

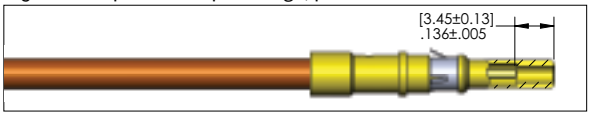

Figure G. Flush dimensions .136" ± .005 .

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CONTACT INSTALLATION AND REMOVAL- ITA

CONTACT PART # 610141101/102/103/104

MODULE, TOOL PART# 510108262/263/278, 510161106/107/111/112/113, 910112123

INSTALLATION

1. Assemble the contact to the respective wire.

2. Insert the terminated contact into the back of the module. Push the contact forward until the crimp is inside the module housing. The contact can only be installed from the back side. Once in place, pull the wire slightly to ensure the contact is fully seated.

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

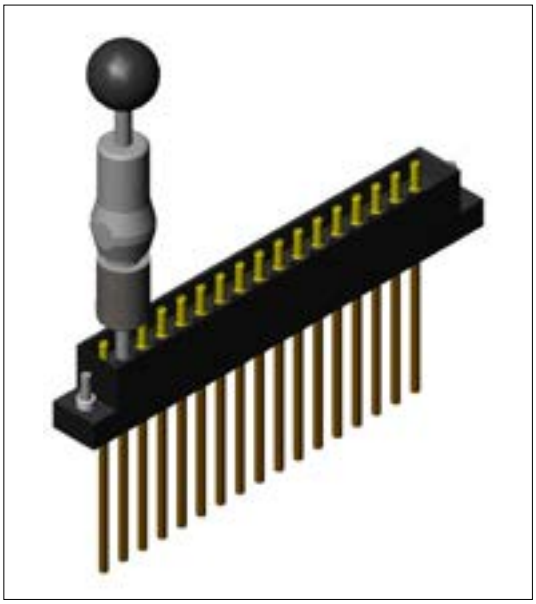

Figure A. Ensure that the tool is kept perpendicular to the module face to avoid damage to the contact or tool.

REMOVAL

1. Remove the module from the ITA frame.

2. Place the extraction tool (**Figure A**) over the contact to be removed. *Use care to keep the tool perpendicular to the surface of the module, otherwise the tool or contact could be damaged.* Rotate the tool slightly while pushing it into the counter bore on the mating side of the module.

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

DO NOT DEPRESS THE PLUNGER ON THE BACK OF THE EXTRACTION TOOL UNTIL THE TIP OF THE EXTRACTION TOOL HAS FULLY SEATED INTO THE MODULE AND COMPRESSED THE RETAINING RING TABS ON THE CONTACT, OTHERWISE THE RETAINING RING COULD BE DAMAGED.

CLICK HERE
Video Tutorial
VPC YouTube
Channel

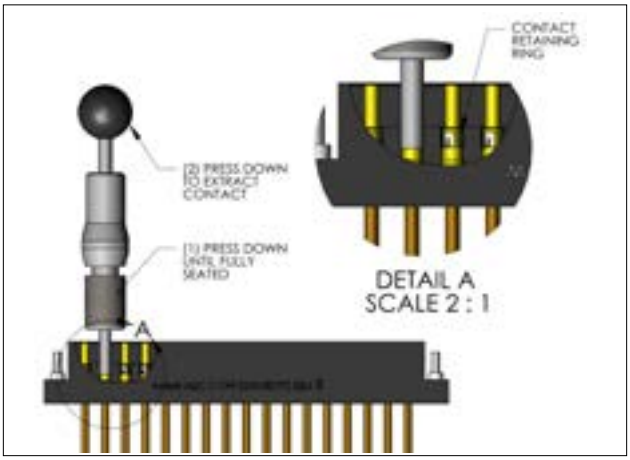

Figure B. Push the plunger only after the retaining tabs are compressed.

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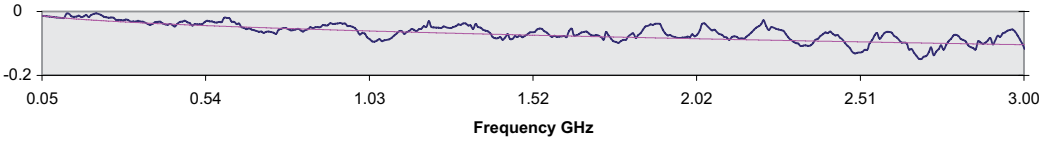
CONTACT PERFORMANCE SPECIFICATIONS

PART # 610140101/102/103, 610141/102/103

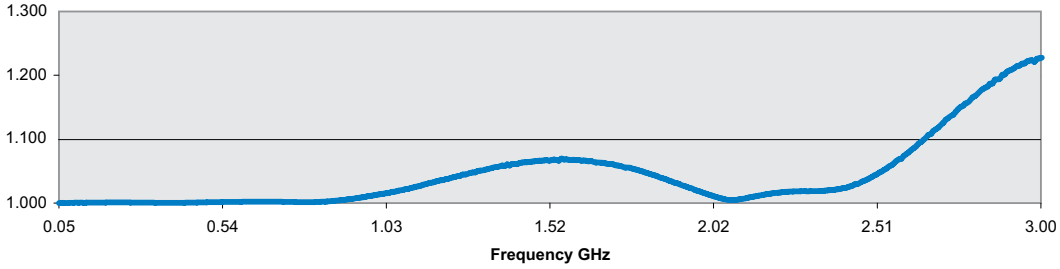
ELECTRICAL SPECIFICATIONS *(p/n 610140101/102, 610141101/102)*

IMPEDANCE	50 Ohm for RG316 or RG178/ 75 Ohm for RG179
FREQUENCY RANGE	DC - 3 GHz for RG316 or RG178/ DC-1 GHz for RG179
DIELECTRIC BREAKDOWN	800 VRMS
VSWR	1.22 @ 3 GHz
INSERTION LOSS	.06 x √f(GHz) db
RECOMMENDED TERMINATION	610140101/ 610141101: RG316 610140102/ 610141102: RG178 610140103/ 610141103: RG179

db INSERTION LOSS



VSWR RATIO



MECHANICAL CHARACTERISTICS

LIFE EXPECTANCY (CYCLES)	10,000
MATING FORCE	1.5 lbs max [0.68 kg]
EXTRACTION FORCE	1.5 lbs max [0.68 kg]

MATERIAL

OUTER SHIELD (ITA)	Brass per ASTM - B-16 / .000050” Au over .000100” Ni
OUTER SHIELD (RCVR)	Brass per ASTM - B-16 / .000050” Au over .000100” Ni
CENTER CONDUCTOR (ITA)	BeCu per ASTM - B-196 / .000050” Au over .000100” Ni
CENTER CONDUCTOR (RCVR)	BeCu per ASTM - B-196 / .000050” Au over .000100” Ni
RETAINING RING	BeCu per ASTM - B-196 / .000100” Ni
FERRULE	Brass per ASTM - B-16 / .000010” Au over .000100” Cu
DIELECTRIC	PTFE Fluorocarbon

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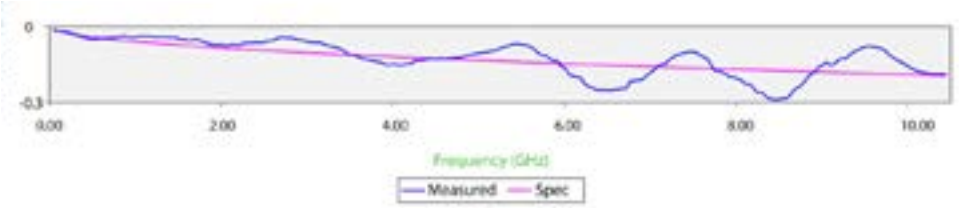
DOUBLE SHIELDED CONTACT PERFORMANCE SPECIFICATIONS

PART # 610140104, 610141104

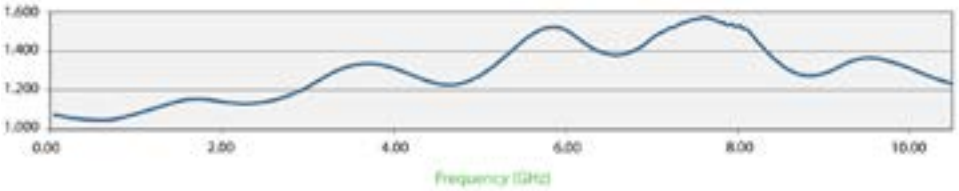
ELECTRICAL SPECIFICATIONS

IMPEDANCE	50 Ohm for RG316DS
FREQUENCY RANGE	DC - 10.5 GHz
DIELECTRIC BREAKDOWN	800 VRMS
VSWR	1.0225 + .05 f(GHz)
INSERTION LOSS	.06 x √f(GHz) db
RECOMMENDED TERMINATION	RG316DS

db INSERTION LOSS



VSWR RATIO



MECHANICAL CHARACTERISTICS

LIFE EXPECTANCY (CYCLES)	10,000
MATING FORCE	1.5 lbs max [0.68 kg]
EXTRACTION FORCE	1.5 lbs max [0.68 kg]

MATERIAL

OUTER SHIELD (ITA)	Brass per ASTM - B-16 / .000050” Au over .000100” Ni
OUTER SHIELD (RCVR)	Brass per ASTM - B-16 / .000050” Au over .000100” Ni
CENTER CONDUCTOR (ITA)	BeCu per ASTM - B-196 / .000050” Au over .000100” Ni
CENTER CONDUCTOR (RCVR)	BeCu per ASTM - B-196 / .000050” Au over .000100” Ni
RETAINING RING	BeCu per ASTM - B-196 / .000100” Ni
FERRULE	Brass per ASTM - B-16 / .000010” Au over .000100” Cu
DIELECTRIC	PTFE Fluorocarbon

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CROSS REFERENCE TABLES

RECEIVER CONTACTS	STANDARD/ 90 SERIES RECEIVER MODULES		ICON RECEIVER MODULES					CRIMP TOOLS		LOCATOR	EXTRACTION	MISC.	
	510104267	510104270	510160106	510160107	510160111	510160112	510160113	910101131	910101132	910101135	910112123	910121178	910121179
610140101	X	X	X	X	X	X	X		X	X	X	X	X
610140102	X	X	X	X	X	X		X		X	X	X	X
610140103	X	X	X	X	X	X			X	X	X	X	X
610140104	X	X	X	X	X	X	X				X	X	X

ITA CONTACTS	STANDARD/ 90 SERIES ITA MODULES		ICON ITA MODULES			CRIMP TOOLS		LOCATOR	EXTRACTION	MISC.	
	510108262	510108263	510161106	510161107	510161111	910101131	910101132	910101139	910112123	910121178	910121180
610141101	X	X	X	X	X		X	X	X	X	X
610141102	X	X	X	X	X	X		X	X	X	X
610141103	X	X	X	X	X		X	X	X	X	X
610141104	X	X	X	X	X				X	X	X

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