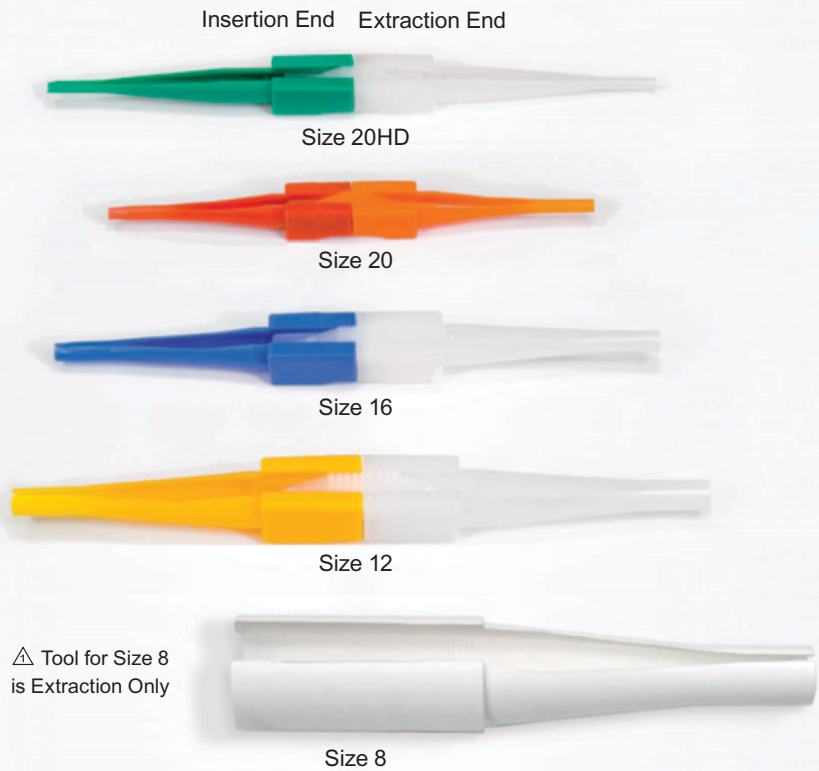
Insertion and Extraction Tools

Used To Install			Tool Numbers		Color Coding	
Size	Non-Coax (Signal) Contacts*	SSBP Coax Assemblies	SMI Tool No.	MIL Tool No.**	Insertion End	Extraction End
20 D-Sub	M39029/64-368	SSBP-20HDS	T-5093-20HD	M81969/39-01	Green	White
20 D-Sub	M39029/64-369	SSBP-20HDP	T-5093-20HD	M81969/39-01	Green	White
20	M39029/57-357	SSBP-20S	T-5093-20	M81969/14-10	Red	Orange
20	M39029/58-363	SSBP-20P	T-5093-20	M81969/14-10	Red	Orange
16	M39029/57-358	SSBP-16S	T-5093-16	M81969/14-03	Blue	White
16	M39029/58-364	SSBP-16P	T-5093-16	M81969/14-03	Blue	White
12	M39029/57-359	SSBP-12S	T-5093-12	M81969/14-04	Yellow	White
12	M39029/58-365	SSBP-12P	T-5093-12	M81969/14-04	Yellow	White
8	No MIL P/N	SSBP-8S	T-5093-8	None	⚠	White
8	No MIL P/N	SSBP-8P	T-5093-8	None	⚠	White

* MIL-C-39029 Superseded by AS39029 (Reference Only). ** For Reference only. ⚠ Extraction Only

Insertion / Extraction Tools



SSBP Size 20 Guide Pin

Guide Pin (SSBP-20GP) for use with SSBP Size 20 Male/Pins

Why the SSBP-20GP Guide-Pin is Needed

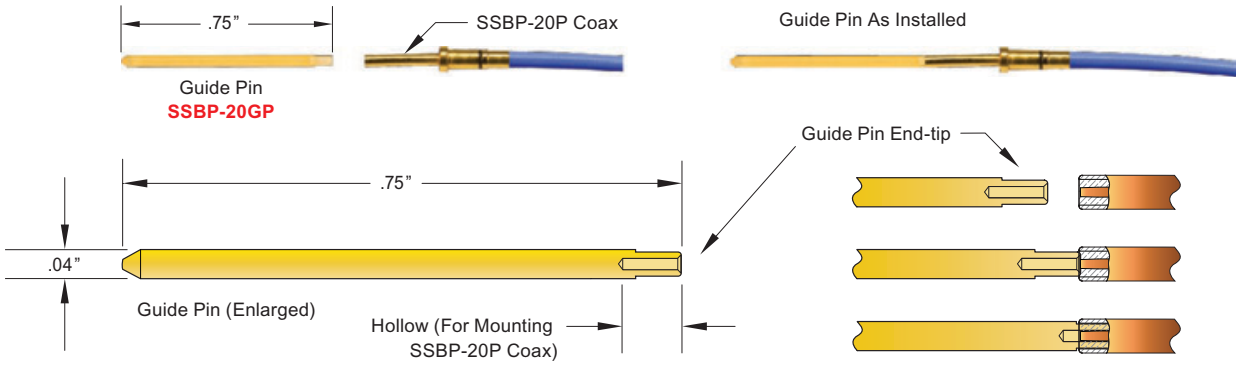
The SSBP-20GP Guide Pin is used only with the Size 20 SSBP male/pin coax assemblies. Non-coax signal contacts have similar external envelopes as SSBP coaxes. Standard signal male/pins are solid with fully radiused ends whereas the SSBP male/pin coaxes have coaxial construction (see page 10). The small SSBP-20 male/pin outer contact has a relatively thin wall forward extension tube (for the equivalent of male/pin protrusion).

The non-coax, radiused end of a solid signal male/pin contact can find its way to self-align through the square step inside of the host connector pin insert assemblies. However, the coaxial front-end of the SSBP male/pin can "catch" on this square step and hinder proper installation. To eliminate this potential problem, Southwest Microwave provides a plastic guide-pin that will help "guide" the SSBP-20 male/pin into position. Southwest Microwave has standardized its Assembly Instruction so that the SSBP-20GP can be used for all SSBP-20P male/pin assemblies in MIL-DTL-38999 connectors.

Use of the SSBP-20GP Guide-Pin

The SSBP-20GP guide pin is used only when installing SSBP-20P male/pin coaxes. (The guide pin is not used with SSBP-20 female/socket coax assemblies.) SSBP-20GP guide pins are reusable. SSBP-20GP guide pins are shipped with SSBP-20 Pin coaxes. They do not need to be ordered separately. However, if needed, they are available as stand-alone component "SSBP-20GP".

Guide Pin (SSBP-20GP) Installation *for use with SSBP Size 20 Male/Pins*



Inserting Guide Pin into the End of SSBP-20P Coax

Installation of the SSBP-20GP Guide-Pin

To start, the SSBP-20P coax should be terminated to cable and the cable-coax assembly “installed” into the T-5093-20 (Size 20 CIET) tool. One end of the plastic guide-pin has a hollow section. This hollow end is inserted into the end of the SSBP-20 Pin coax (see illustration above). The hollow section fits over the central pin of the coaxial contact. There is a shoulder on the guide-pin that rests against the end of the SSBP-20 Pin coax to prevent over-insertion. Contact installation proceeds per the “Contact Insertion/Extraction” discussion on page 30. After the SSBP-20 Pin coax is installed in the connector, the guide-pin will protrude from the front-face of the connector. Gently grip the guide-pin (where it extends from the front mating face of the connector) and pull it forward. The guide-pin will easily separate from the SSBP-20P coax and be available for reuse.

Materials & Finishes – SSBP Coaxes

Materials:

- Center Contacts, Outer Contact, Bushings: Beryllium Copper (BeCu), UNS-C17300 per ASTM B 196/197
- Compression Springs: Stainless Steel 304V Hyten (High Tensile Strength) per ASTM A313 (Chem only), or Stainless Steel UNS-S17700 RH950 per ASTM A313
- Alignment Sleeves, Flanged Sleeves: Stainless Steel UNS-S30300 temper cold drawn, per ASTM A582
- Contact Capture Bead Rings: High Temperature Ultem 1000, per ASTM-D-5205
- Concentricity Bead Rings (Dielectrics): Virgin PTFE Fluorocarbon, per ASTM-D-1710, Type 1, Grade 1, Class B, and ASTM-D-1457

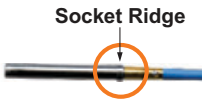
Finishes:

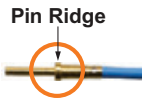
- Center Contacts, Outer Contacts, Bushings: Gold per MIL-DTL-45204, Type II, Grade C, over Electroless Nickel per MIL-C-26074
- Sleeves, Compression Springs: Passivated per ASTM A967

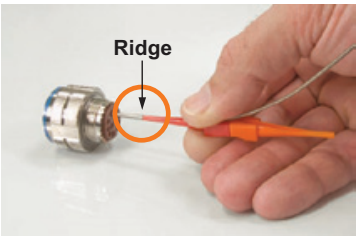
Environmental:

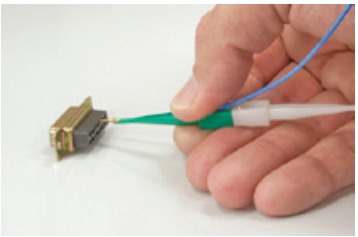
- Operating Temperatures: -55°C to +165°C
- Environmental Performance (moisture, etc.) is dependent upon the multi-contact connectors used when properly mated.

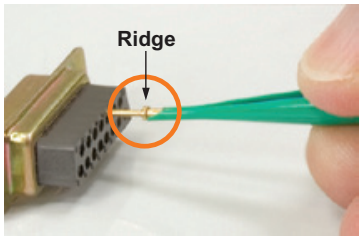
SSBP Coax Installation and Extraction Guidelines











To Insert SSBP Coaxes:

1. Start with the connector body itself, with the back shell and other rear-accessories removed.

Note: If inserting SSBP-20 Pin into MIL-DTL-38999 connectors, make sure that the SSBP-20GP guide pin is properly installed. (Refer to pages 19-20.)

2. Snap the insertion end of the appropriate size double-ended plastic tool over the wire. Press the wire over the serrated position of the tool and hold in place with your thumb. (Tools are presented on page 19.)
3. Slide the tool up to the raised ridge (for sockets: ridge is on the stainless steel sleeve; for pins: ridge/shoulder is on the pin body). See illustrations above.
4. Slowly push the contact straight into the connector cavity. Stop if there is any high resistance force and withdraw and then reinsert the tool-coax assembly.
5. A positive stop will result when the contact properly seats in the connector cavity. Sometimes a faint “click” may be heard as the connector’s retention tines snap into place behind the raised SSBP ridge/shoulder.
6. Still gripping the wire-tool combination, gently pull back lightly to confirm that the connector’s tines have locked the SSBP coax into place.
7. Release pressure so that the wire is no longer held to the tool. Gently pull the tool straight backward (out) until fully removed.

To Remove SSBP Coaxes:

1. Looking at the rear-face of the connector, snap the extraction end of the appropriate size double-ended plastic tool over the wire connected to the SSBP coax to be removed.
2. Slowly slide the tool along the wire into the contact cavity until it engages the raised ridge/shoulder of the SSBP coax. A positive resistance should be felt. At this time, the contact-retaining-tines are pushed outward to their unlocked position.
3. Press the wire of the SSBP coax to be removed against the serrations of the plastic tool. Compress the wire and tool together. Pull both the tool and the coax wire assembly out of the connector.
4. Remove the tool from the cable so that it can be reused.

Southwest Microwave recommends that customers contact suppliers of the connectors to be used to determine if they may have additional or unique insertion/extraction instructions that may apply to their connectors.