Loosening Stuck Setscrews

On occasion, setscrews may become stuck in either the retracted ("up") or extended ("down") position. This article describes a technique to loosen stuck setscrews, utilizing the Boston Scientific Model 6628 (or compatible) Bi-Directional Torque Wrench.

**NOTE:** New-generation Boston Scientific implantable pulse generators that include a "top hat" setscrew, are designed to reduce the incidence of setscrews stuck in a retracted position by eliminating the need for a setscrew retainer washer.

**Step 1. Insert Torque Wrench**

Locate the pre-slit center depression in the seal plug and carefully insert the bidirectional torque wrench into the hexagon-shaped slot in the screw.

**WARNING:** Use of a non-torquing wrench may result in rounding out of the hexagon-shaped slot.

**CAUTION:** When inserting the torque wrench, take care to avoid damaging the seal plug.

**Step 2. Verify Stuck Setscrew Position**

Determine if the stuck setscrew is in the retracted or extended position, as described below:

| Characteristics of setscrews that are stuck in the: |  
|---------------------------------|---------------------------------|
| retracted ("up") position | extended ("down") position |
| Wrench ratchets immediately upon rotation in either direction | Wrench ratchets immediately upon rotation in either direction |
| No downward movement of setscrew | No upward movement of setscrew |
| Screw not visible in lead barrel | Screw visible in lead barrel (may prevent full insertion of lead) |
| Leads already in lead barrel can be freely removed | Leads already in lead barrel cannot be removed |
Step 3. Loosen stuck setscrew

A. From a perpendicular position, tilt the wrench 20° - 30° from the vertical center axis of the screw (Figure 1).

![Figure 1. Wrench tilted 20° to 30° from perpendicular position.](image)

B. Perform rotational movement, as described below:

<table>
<thead>
<tr>
<th>If the setscrew is retracted (“up”):</th>
<th>If the setscrew is extended (“down”):</th>
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<tbody>
<tr>
<td>Rotate the wrench around the vertical axis three times in a clockwise circular pattern, such that the handle of the wrench orbits the centerline of the screw.</td>
<td>Rotate the wrench around the vertical axis three times in a counterclockwise circular pattern, such that the handle of the wrench orbits the centerline of the screw.</td>
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</tbody>
</table>

- The wrench handle should not twist or turn during this rotation.

- Do not turn or twist the hex wrench handle during this rotation.

- As needed, this process may be attempted up to four times with slightly more angle (not to exceed 30°) each time.

![Top view of clockwise wrench rotation.](image)

![Top view of counterclockwise wrench rotation.](image)

Step 4. Once the setscrew has been freed, extend or retract the setscrew as appropriate.

This technique may be attempted up to four times (up to 12 rotational movements) with the same wrench. If the setscrew remains stuck after four attempts (12 rotations), no further attempts should be made.

**NOTES:**

- Discard the torque wrench after each case in which this technique is used; Do not resterilize and re-use as calibration of the wrench cannot be ensured.
- Use of this technique applies to all Boston Scientific pulse generator header configurations.
- Tilting the hex wrench at a 20° to 30° angle will result in a slight bend of the hex wrench blade; this is expected.
- If the setscrew has not been loosened, use the #2 hex wrench from the Wrench Kit Model 6501.