Through Suit Connector (TSC / ESC-35-2)
Installation Instructions

Fig. 1 — TSC Installation Kit Components

INCLUDED:

1. Installation Press-Vice (TSCK-1)
2. Fabric Ring Clip (TSCK-2)
3. Fabric Ring Holder (TSCK-3)
4. Punch Base (TSCK-4)
5. Punch Disc Blank (TSCK-5)
6. Punch Holder (TSCK-6)
7. TSC Holder Base (TSCK-7)
8. Lock Holder (TSCK-8)
9. Hole Punch (TSCK-21)
10. T6 Torx Driver (TSCK-10)
11. Torque Drive Handle (TSCK-26)

NOT INCLUDED:

12. TSC Connector (ESC-35-2)
13. TSC Lock (ESC-35-2)
14. 4x Torx Screws (CCU-20-3-5S)
1-1. **Installation:**

1-2. Assemble the Installation **Press-Vice (Fig. 1, No. 1).** Insert the vice side into the slot on the bottom of the press, and secure with the thumb-screw. (Fig. 1.1)

![Fig. 1.1 — Installation Press-Vice Assembly](image-url)
1-3. Secure the **Press-Vice (Fig.1, No. 1)** to a table or other flat surface for installation (Fig. 1.2).
1-4. Assemble the screw punch. Insert the screw punch bit into the handle until it locks into place. (Fig 1.3)

![Fig. 1.3 — Insert Hole Punch Bit into Hole Punch](image)

1-4.1. To remove the screw punch bit, pull back slightly on the silver section of the handle and remove the bit. Very little pressure is required to release the bit. (Fig. 1.4)

![Fig. 1.4 — Remove Hole Punch Bit into Hole Punch](image)
Preparing the Garment: Proper placement of the TSC is critical, marking the location of the installation must be accomplished with the Aircrew strapped into the ejection seat. Have aircrew don CWI and proper Below the Neck (BTN) Pilot Flight Equipment (PFE). While seated and strapped into the ejection seat determine and mark (using indelible marker) the desired location for the TSC on the CWI (Fig. 2).

NOTE: Mark CWI where the center of the TSC will be placed.

Fig. 2 — Marking of the installation site

NOTE: PFE Technician would be determining and marking the proper location with the aircrews assistance (figure for illustrative purposes only)

Primary Hole Punch operation:

a. Hold the Fabric Ring Clip (Fig. 1, No. 2) beneath the mark on the inside of the garment, with the tongs facing the material (Fig. 3 INSIDE CWI).

b. Position the Fabric Ring Holder (Fig. 1, No. 3) centered over the mark on the outside of the garment (Fig 3. OUTSIDE CWI). Draw an X over the location dot to facilitate proper positioning of the Fabric Ring Holder.
1-7. Press the Fabric Ring into the Fabric Clip to hold the fabric in place (fig. 4).

**Fig. 3 — Fabric Ring Placement**

1-8. Place the Punch Base (Fig. 1, No. 4) into the Fabric Ring (Fig. 5).

**Fig. 4 — Fabric ring and clip placement**

**NOTE:** Ensure all Fabric Slack is removed before punching hole.

1-8. Place the Punch Base (Fig. 1, No. 4) into the Fabric Ring (Fig. 5).

**Fig. 5 — Punch Base Placement**
1-9. Holding the Clip and Ring, place the Punch Base into the recess on the Installation Press (Fig. 6) (Fig. 1, No. 1).

![Clip and Ring placement in Punch Base.](image)

**Fig. 6 — Clip and Ring placement in Punch Base.**

**NOTE**
Ensure to inside of garment is facing up.

1-10. Hold the Punch Base in position and place the Punch Holder through the hole on the Clip (Figure 7) (Figure 1, Number 6).
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Fig. 7 — Position and place the Punch Holder

1-8. Rotate the Press lever and apply pressure to punch through the fabric (Fig. 8).
NOTE

To fully cut hole, rotate Punch Base between lever rotations, ensuring fabric is completely cut.

1-9. Remove the Punch and discard the cut fabric. Remove the Punch Base from the Press (Fig. 9).

CAUTION

Remove Punch Base Only

1-10. Fitting the TSC.
1-11. Visually check the TSC Connector (Fig. 1, No. 12) and TSC Lock (Fig. 1, No. 13) to ensure that the 3 Sealing O-Rings (pictured below) is installed and in place (Fig. 10).

1-12. Place the TSC Connector into the TSC Holder Base (Fig. 1, No. 7). Turn the Connector until it drops into place, flush with the top of the Base with gaskets showing (Fig. 11).
1-13. Place the TSC Holder Base into the recess on the Installation Press stand. Place the Fabric Ring Holder onto the TSC Holder Base (Fig. 12).

![Fig. 12 — TSC Holder Base into the recess on the Installation Press Stand](image1)

1-14. Insure that the sealing O-Ring is exposed and above the fabric. Gently press the fabric down beneath the O-ring with the Torx Screwdriver (Fig. 13).

![Fig. 13 — O-Ring is exposed and above the fabric](image2)

1-15. Place the TSC Lock onto the Lock Holder. It should fit snugly in place with gasket showing (Fig. 14).
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1-16. Hold the TSC Holder Base in position and place the Lock Holder (Fig. 1, No. 8) and Lock through the hole on the Fabric Clip. Spin the Lock holder until the Lock falls into place. Rotate the Press lever and apply pressure until the TSC Lock is in place on the TSC Connector. Depending on the Fabric being used, more force may be needed to ensure that the TSC is pushed securely into place. To ensure that the Lock is in place, it may take 5 or 6 very firm presses each for about 5 seconds (Fig. 15).

1-17. Remove the Lock Holder by pressing down and tilting base away to one side so the Lock Ring does not lift off with it (Fig. 16).
1-18. Use the Screw Punch (Fig. 1, No. 9) to make screw holes through the fabric. Push the punch through the fabric until the punch bottoms out. (Fig. 17).

Fig. 16 — Removing Lock Holder

Fig. 17 — Making Holes with Screw Punch
1-19. Install the four Torx Screws (Fig. 1, No. 15). Using the Torque Screwdriver (Fig. 1, No. 10 & 11) set to 80 in-oz. Start by screwing counter clockwise to set the screw through fabric, making at least one full rotation. Then tighten the screw normally. Work in a crisscross pattern screwing in the opposite screws until snug (Fig. 18). Once all screws are snug, securely tighten all screws until the Torque Screwdriver clicks and apply Yellow Tamper Dot after tightening (Q/A STEP).

Fig. 18 — Tightening screws

1-20. Place the base back into the press and re-attach the Lock Holder. Press firmly down on the lever several times to ensure the tightest seal possible. Afterwards, remove the Lock holder and tighten the screws a second time (Fig. 19).
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**Fig. 19 — Re-Attach Lock Holder**


**Fig. 20 — Remove Fabric Clip**

1-22. Inspect both sides of the TSC to ensure that it is securely in place. Ensure that there is NO GAP between the connector and the fabric. This is vital to ensure that a proper seal is formed (Fig. 21).

1-23. If there is a gap, place the connector back into the press. Apply additional pressure with additional presses until the gap is gone. Tighten screws afterwards. Some fabrics are stiffer than others, and the additional force is required to ensure that the TSC seals properly.

**Fig. 21 — Check for GAP**
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Fig. 22 — F-35 CWI Survitec 9268 Fabric with TSC installed
Fig. 23 — Installed on F-35 CWI in typical location