TA600 Top Housing Replacement

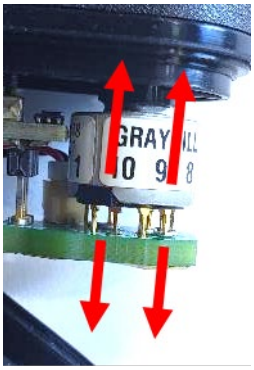
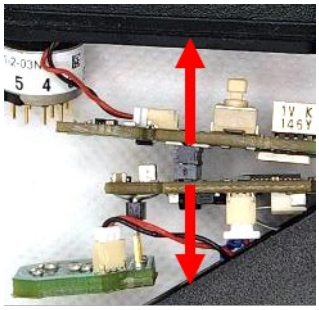
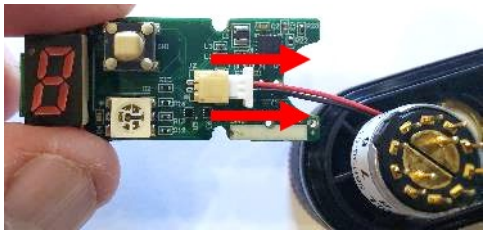
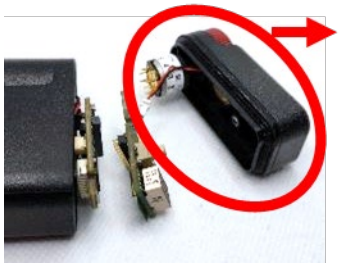
DET-HHD-STE-TA6-CM02

Description	This procedure provides instructions on the replacement of the top housing of the TA600 Radiation Pager manufactured by Sensor Technology Engineering (STE). Replacement of this component addresses two issues: difficulty pressing the display button and difficulty turning the power knob. If the display button is not difficult to press, but the power button is difficult to turn, then refer to DET-HHD-STE-TA6-CM01, *TA600 Power Knob Adjustment*. The 0.05-in. [inch] hex driver needed to perform this procedure is not a commonly available tool and should be obtained in advance of attempting this procedure. It is also recommended to use a magnifying glass as the connections, screws and wires are very small.
Equipment Hierarchy	Sensor Technology Engineering TA600 Radiation Pager
Frequency	Display button is difficult to press Power knob is difficult to turn
Skill Level/#	Technician 2 x 1
Tools Required	• Coin screwdriver (STE Part# 8125-9-45) • Tweezers • 0.05-in. hex driver
Materials Required	• Pager top housing (STE Part# 310-006-697) • Pager top sticker (STE Part# 311-007-473) • Four 18-8 Stainless Steel socket head screws (STE Part# 92196A059) • Four 18-8 Stainless Steel washers (STE Part# 98370A001) • Isopropyl alcohol • Cotton swab
Expected Duration	1 hour
Safety Concerns	None
Retest Requirements	DET-HHD-STE-TA6-RM01, *TA600 Operational Test*
Final Documentation	Corrective Maintenance Report
Departmental Coordination	Prior to arrival, notify operators concerning expected work and duration.

Originator:	Brian Tucker, Jeremiah Prousalis	**Date:**	August 2024
Organization:	PNNL, STE	**Version #:**	
Revision:		**By:**	
Revision:		**By:**	
Approval:	Cody Hostick		

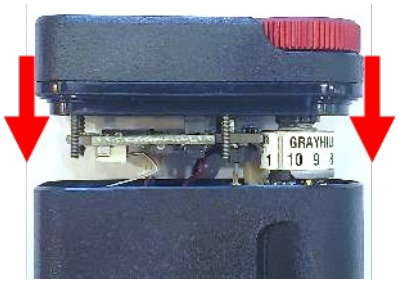
Step	Instruction	Remarks
1	**Remove Existing Battery**	
1-1	Power off instrument	Rotate switch to **OFF** position. 
1-2	Locate battery cover	
1-3	Remove battery cover	Use a coin screwdriver, a medium #2 slotted screwdriver or a coin. Rotate counterclockwise.  
1-4	Remove battery	Retain battery. 

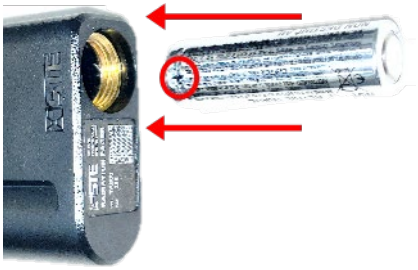
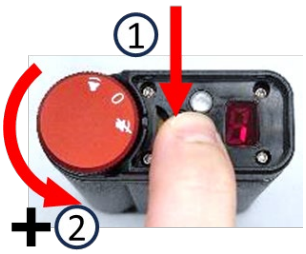
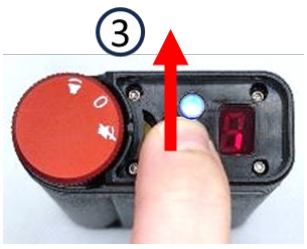
Step	Instruction	Remarks
2	**Remove faulty top housing**	
Caution: Do not mix components or circuit boards between instruments. Some components contain serial number information specific to each instrument. It is recommended to perform this procedure on one instrument at a time to prevent swapping components.		
2-1	Remove label	Use tweezers or a sharp blade to pry up the label using the speaker holes or the edge. Discard label. 
2-2	Remove four enclosure screws and washers	Use 0.05-in. hex driver. Retain screws and washers. Washers might be difficult to dislodge. 
Caution: Wires are still connected. Do not strain black and red wires. They can easily break.		
2-3	Separate top and bottom enclosures	

Step	Instruction	Remarks
Caution: Wires are still connected. Do not strain black and red wires. They can easily break. Avoid bending or breaking switch pins.		
2-4	Disconnect rotary switch board	Carefully wiggle rotary switch board to remove it from switch. 
2-5	Separate circuit boards	Carefully wiggle boards to unplug the socket that holds boards together. 
2-6	Disconnect piezo connector	Retain circuit boards for reinstallation. 
2-7	Discard faulty top housing	Use tape and marker to label faulty component. 
3	**Install new top housing**	

Step	Instruction	Remarks
3-1	Connect piezo connector	Use new top housing. 
3-2	Insert PCBA into top housing	 Route wires under rotary switch connector. Wires should not be coiled up on piezo or interfere with assembly screws. 

Step	Instruction	Remarks
3-3	Insert four enclosure screws and washers	 Verify screws do not interfere with piezo wires. 
Caution: Verify the connectors are aligned correctly. Misalignment of this connector is common and will cause the instrument to malfunction.		
3-4	Connect PCBAs	Carefully line up the pins with the sockets and press firmly. 
3-5	Connect rotary switch board	Carefully line up the pins with the sockets and press firmly. 

Step	Instruction	Remarks
Caution: Verify all wires are inside instrument. Verify wires do not interfere with enclosure screws.		
3-6	Place top housing on bottom housing	Route wire to avoid enclosure screws. 
Caution: Do not overtighten screws.		
3-7	Evenly tighten enclosure screws	Evenly tighten screws until the gasket is lightly compressed. It is recommended to perform this by hand to avoid overtightening. 
3-8	Verify enclosure screws are tightened correctly	1 – Not tight enough; gap between gasket and housing 2 – Too tight; gasket is bulging 3 – Correctly tightened; no gap, no bulging 

Step	Instruction	Remarks
4	**Replace battery**	
4-1	Insert battery	Insert positive **(+)** terminal first. 
4-2	Reinstall battery cover	Use a coin screwdriver, a medium #2 slotted screwdriver or a coin. Rotate clockwise. 
5	**Verify instrument is operational**	
5-1	Initiate self-test	1 – Hold down display button. 2 – While holding display button, turn power knob to vibrate mode.  3 – Release display button after LED flashes blue 

Step	Instruction	Remarks
5-2	Observe self-test	The instrument will go through several routines in rapid succession. LED will rapidly flash red, yellow, green, and blue  All segments of segmented display will illuminate sequentially.  Instrument will beep  Instrument will vibrate  Middle LED segment will flash and disappear 
5-3	Verify successful self-test	The self-test is successful if actions were observed. If the middle LED segment remains illuminated, the self-test was NOT successful. 
5-4	Perform Operational Test	DET-HHD-STE-TA6-RM01, *TA600 Operational Test*
6	**Complete Assembly**	

Step	Instruction	Remarks
6-1	Power off instrument	Rotate switch to **OFF** position. 
6-2	Clean top housing	Use cotton swab with alcohol. Carefully clean top of instrument. This will remove oils or debris where enclosure label will be applied. 
6-3	Apply enclosure label	Remove label backing. Align label on top housing. 
7	**Document Maintenance Actions**	
7-1	Document maintenance performed	Record observations, times, and results for the Corrective Maintenance Report.
7-2	Submit Routine Maintenance Report	As specified by management or contractual obligations.