

SANDEL®

COMPONENT MAINTENANCE MANUAL FOR SANDEL SN3500 EHSI Navigation Display

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PROPRIETARY DATA

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REVISION SHEET

REV	Date	Pages	Para.	DESCRIPTION OF CHANGES
D	February 1, 2010	9-11	All	A/R 1108 Added Section 5. Field replacement of Diffuser Window
C	June 24, 2009	7-8	All	A/R 1077 Added section 4. Field u-joint replacement.
B	Nov 20, 2007	4 4-6	3 All	A/R 941; Added Lamp Kit part number; updated for Mod 1 LED backlight; Updated lamp housing figures for better clarity.
A	Sep 14, 2006	All	All	A/R 855; Initial Release

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1. APPLICABILITY

This document is applicable to maintenance for continued airworthiness of Sandel SN3500 EHSI Navigation display:

Unit part number: SN3500-xxx, Software revision 1.00 or later

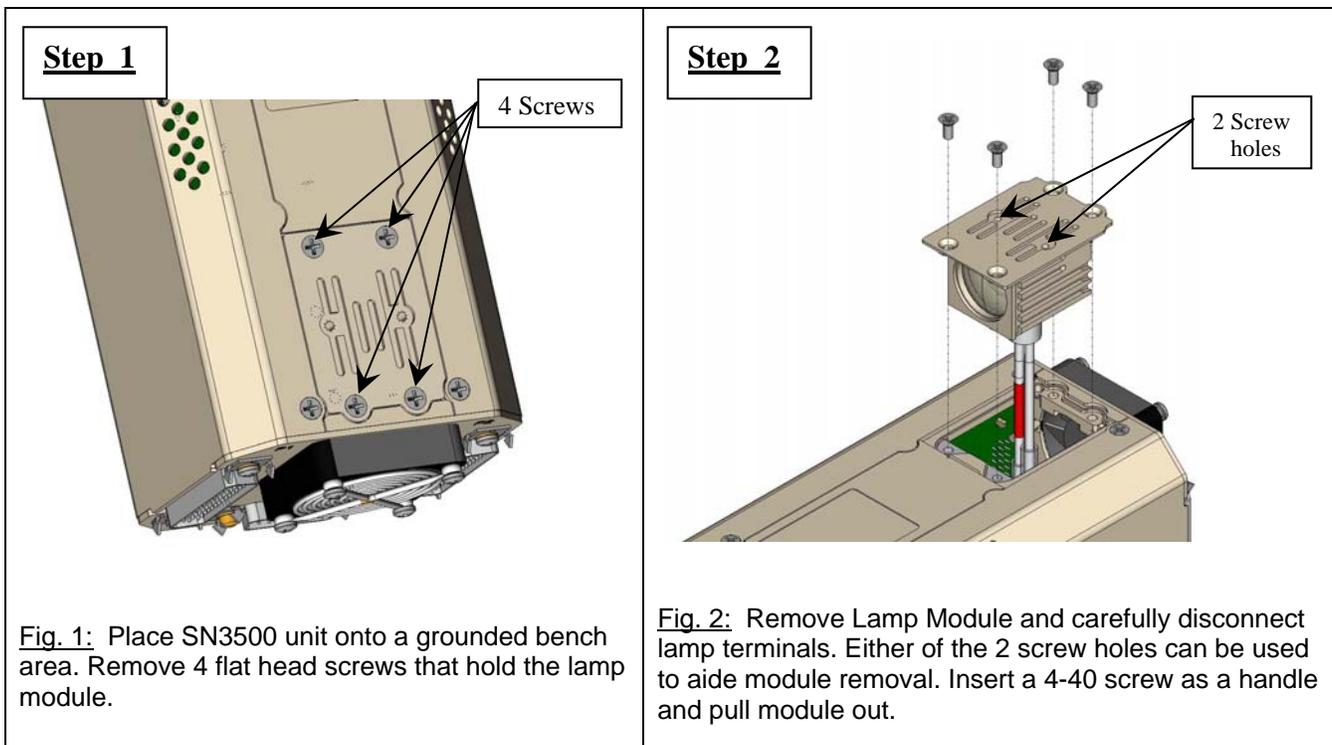
2. UPLOADING SYSTEM SOFTWARE AND DATABASES

System software is released via SIL (Service Information Letter) posted on the Sandel website. The SIL contains links to the software and the related software installation files necessary to load the software. Database updates are available for purchase via the Sandel website. The database information site also contains up-to-date links to database download instructions.

The SIL's and Database update information can be found at: www.sandel.com under "Support".

3. LAMP REPLACEMENT PROCEDURE

Field lamp replacement applies to part number SN3500-xxx, serial numbers less than 2000 without Mod Level 1 LED light source [the Mod level is shown on the lower portion of the TSO label]. Use the following eleven step procedure to replace the lamp using Sandel Lamp Kit part number 90130-LK. SN3500-xxx Mod Level 1 LED light source is not field serviceable.



Step 3

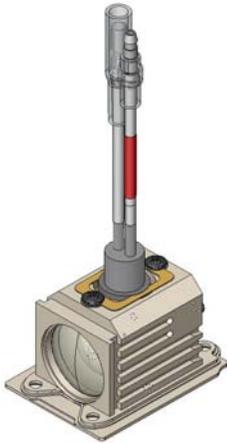


Fig. 3: Place lamp module onto flat surface.

Step 4

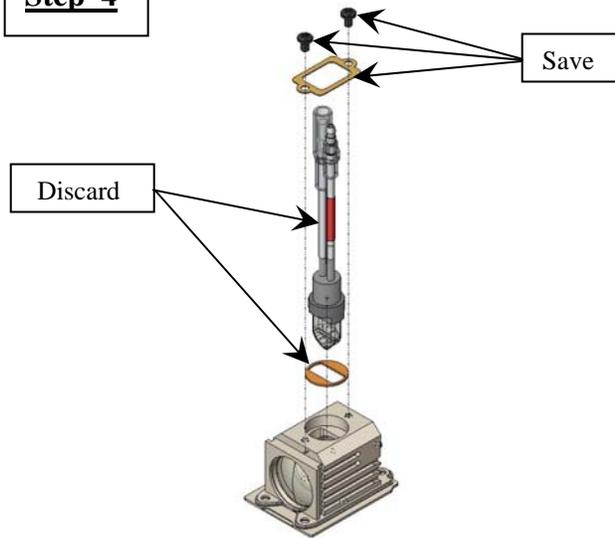


Fig. 4: Remove screw, lamp bracket, lamp and spacer. Discard lamp and spacer. Lamp Contains Mercury, Dispose According to Local, State or Federal Laws. Save bracket and screw for replacement lamp set.

Step 5

Lamp Assy
84015



Fig. 5: Remove lamp and shim from protective packaging. **Do not touch lamp glass with bare skin!** This can significantly reduce lamp life. Ensure lamp is clean and free from dirt or dust. If cleaning is required, use isopropyl alcohol and a clean cotton swab.

Step 6

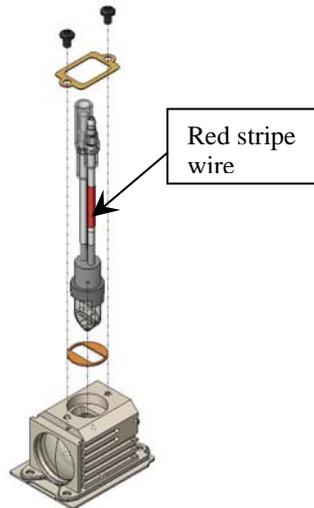


Fig. 6: Orient the lamp wire with red stripe as shown. Assemble new lamp, spacer, existing bracket and screw into lamp module as shown.

Step 7



Fig. 7: Ensure lamp is fully seated into lamp housing. Torque pan head screw until snug.

Step 8

Terminal Covers

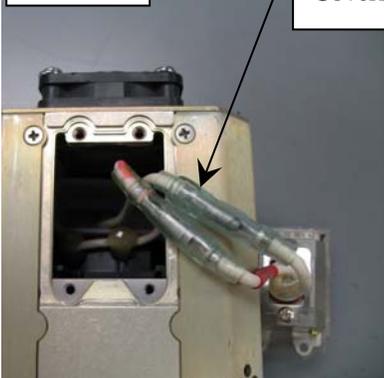


Fig. 8: Reconnect the lamp terminals to mating terminals inside unit lamp pocket. **Ensure terminal covers are completely engaged and completely cover the connected terminals.** These covers prevent high voltage shorting inside the unit.

Step 9

Wires inside box

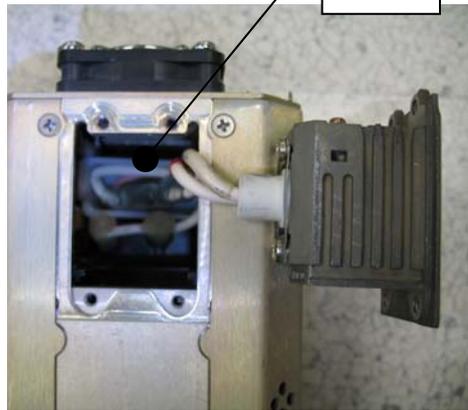


Fig. 9: **Ensure the lamp wires are securely seated inside the plastic wire box.** Ensure the lamp wires are not touching the circuit cards or rear fan surface.

Step 10

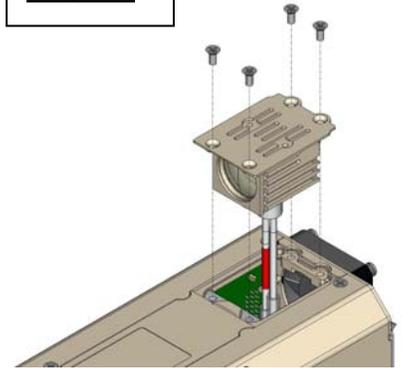


Fig. 10: Fully seat lamp module into unit lamp pocket. Fasten and torque flat head screws until snug.

Step 11

SOFTWARE RESET:

Reset the lamp-hours counter in the SN3500 by entering the BRT/AUDIO maintenance page, in Edit Mode. Select "Lamp Hours/Cycles" using the arrow buttons. Press the "Reset" softkey to reset.



4. U-JOINT REPLACEMENT PROCEDURE

Field U joint replacement applies to part number SN3500-xxx. Replacement U-joints, Sandel part number 90253-01 may be ordered from Sandel.

Step 1

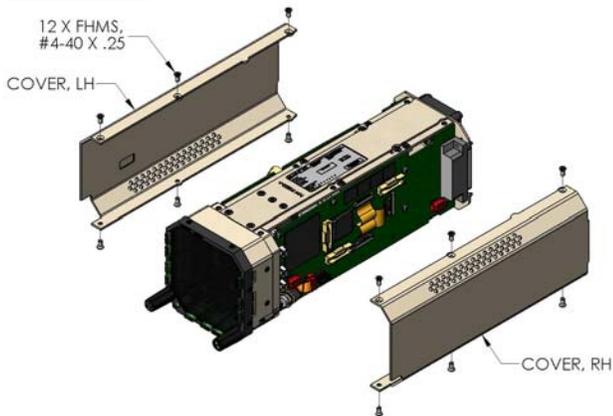


Fig. 1: Place SN3500 unit onto a grounded bench area. Remove 12 ea 4-40 X .25 flat head machine screws securing side covers to unit. Remove side covers

Step 2

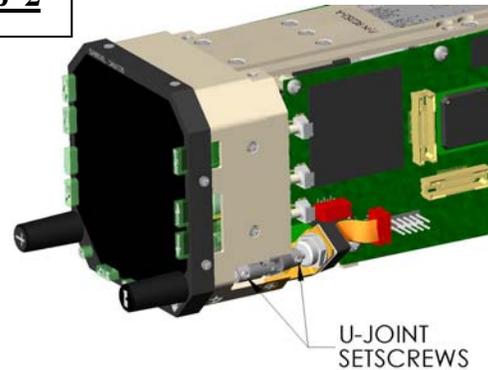


Fig. 2: Rotate Heading and Course knobs to expose U-Joint retaining setscrews. Using 0.050" hex wrench, loosen U-Joint retaining setscrews. (left and right hand sides are symmetric)

Step 3

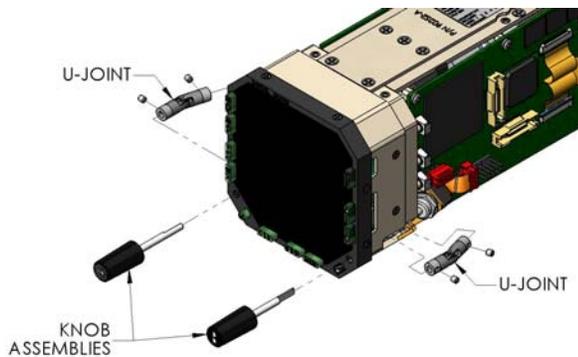


Fig. 3: Remove Heading and Course Knobs thru front of bezel, disengage U-Joints from Encoder Shafts and remove from unit.

Step 4

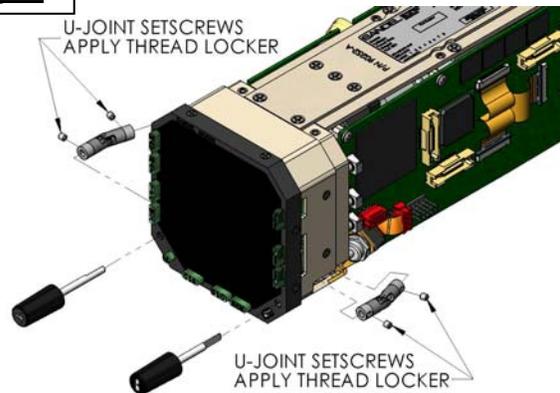


Fig. 4:

1. Apply Thread Locker (Loctite 222, or eq.) to threads of replacement U-Joint retaining setscrews.
2. Align U-Joints to Encoder Shafts and install into unit, leaving $\sim .10$ " gap between rear of U-Joint and face of Encoder (see Fig. 6).
3. Reinstall Heading and Course Knobs (ensuring proper orientation, see Fig. 5), thru bezel, into sockets of replacement U-Joints. Space knobs to leave $.06$ " gap between Knobs and face of bezel (see Fig. 6).
4. Align U-Joint setscrews to flats on Encoder and Knob Shafts and tighten firmly

Step 4 (cont.)

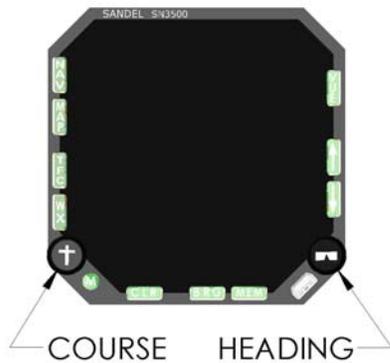


Fig. 5: Ensure correct orientation of Heading and Course Knobs.

Step 4 (cont.)

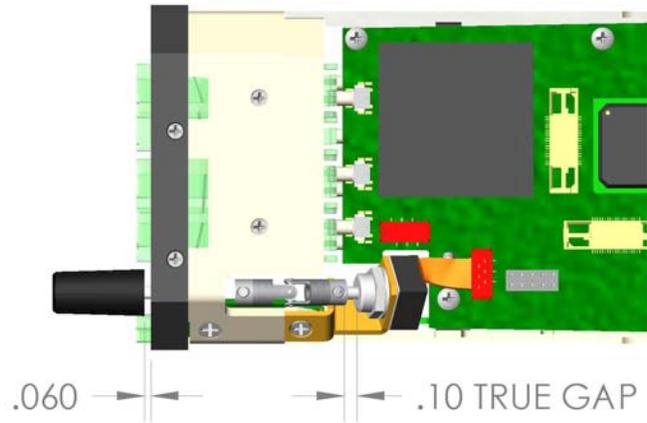


Fig. 6: Space knobs to leave .06 gap between face of bezel and knobs, ~.10" gap between rear of U-Joints and faces of Encoders.

Step 5

Verify Encoder operation:

1. Rotate Heading and Course Knobs through 360°, ensuring that mechanism does not bind.
2. At each detent position, push and release knob, ensuring that encoder push button function operates smoothly, without sticking.
3. If improper function is noted at any position, loosen setscrews and reposition U-Joint slightly to alleviate condition. Maintain .06 gap between knob and bezel.

Step 6

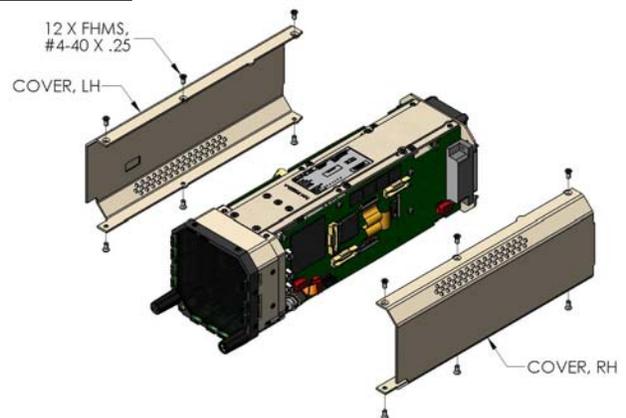


Fig. 7: Reinstall Side Covers to SN3500. Install 12 X 4-40 Flat Head Machine Screws. Torques screws to 5-7 inch-lbs.

5. DIFFUSER WINDOW REPLACEMENT PROCEDURE

Field replacement of Diffuser Window applies to part number SN3500-xxx. Replacement display windows, Sandel part number 63034 may be ordered from Sandel.

Step 1

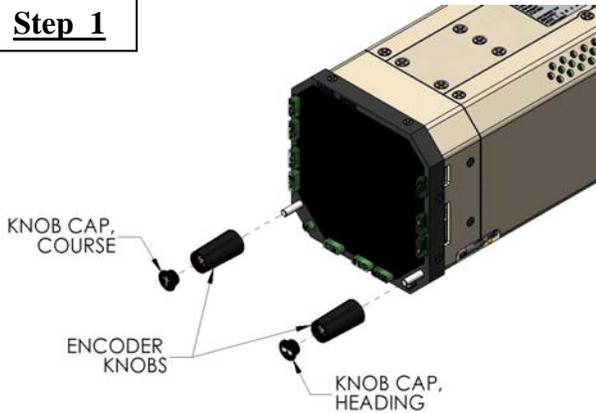


Fig. 1: Place SN3500 unit onto a grounded bench area. Carefully pry heading and course knob caps from encoder knobs using a small, flat blade screw driver or similar. Loosen encoder knob collets using a flat blade screw driver and remove encoder knobs from encoder shafts.

Step 2

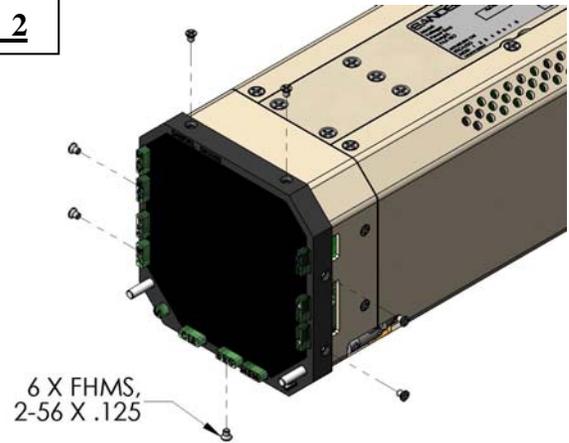


Fig. 2 Remove 6 ea flat head machine screws, 2-56 X .125 retaining bezel to actuator housing. Hold bezel in place to prevent shifting of retained components.

Step 3

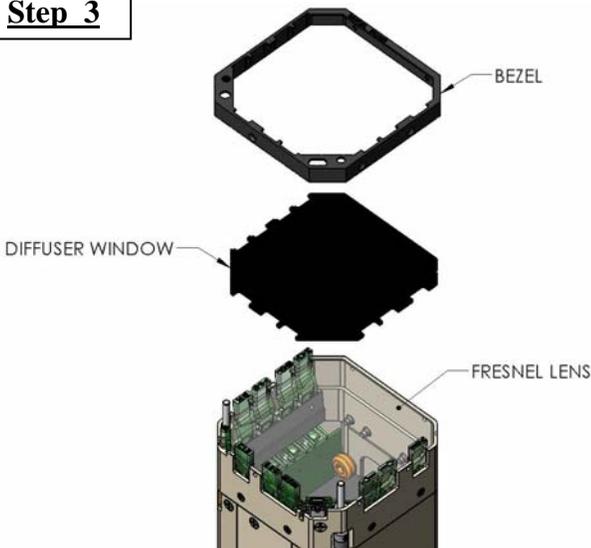


Fig. 3: Carefully lift Bezel and Diffuser Window from unit. Do not remove or shift Fresnel lens. Remove existing window from unit.

Step 4

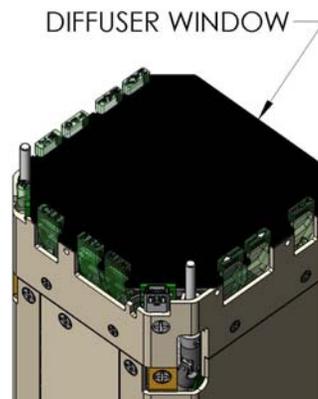


Fig. 4: Align replacement window to switch actuators and place onto Fresnel lens on face of unit. Ensure that Diffuser Window and Fresnel Lens are properly located and have not shifted during procedure.

Step 5

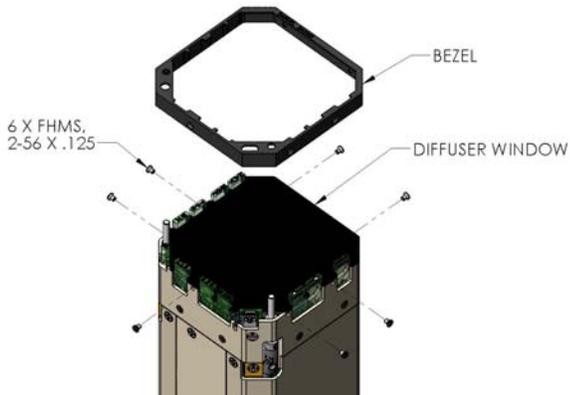


Fig. 5: Carefully reinstall Bezel onto Actuator Housing. Ensure that the machined lip in Diffuser Window engages Bezel opening and that Bezel fully seats. If necessary, loosen (but do not remove) screws at bottom corners of unit to allow Menu Actuator and USB socket to “float” to facilitate installation. Secure Bezel using 6 Ea Flat Head Machine Screws, 2-56 X .125. Re-torque corner screws, if loosened.

Step 6

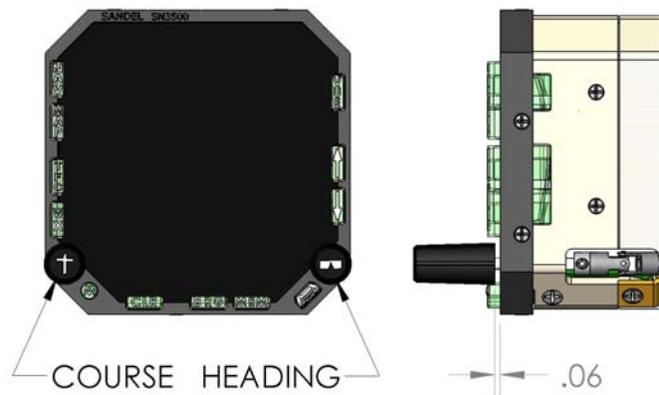


Fig. 6: Place encoder knobs over encoder shafts. Leave approximately 0.06” (1.5mm) gap between back of encoder knob and face of bezel. Tighten encoder knob collets using flat blade screw driver.

Verify knob operation by rotating knob and pushing in knob. Detent in knob push should be detectable and knob should not contact bezel. When depressed, verify gap dimension by slipping a piece of paper between the knob and the bezel (paper is approximately 0.005” [0.1mm]). The paper should fit easily.

Reinstall encoder knob caps into encoder knobs. Ensure proper location of heading and course caps.

Step 7

Verify installation:

1. Ensure that all affected components are installed.
2. Ensure that Bezel is fully seated.
3. Ensure that Bezel retaining screws are securely installed.
4. Ensure that all Switch Actuators operate freely, without binding.
5. Ensure that Encoder Knobs are properly installed, with .060 gap between back of knob and face of Bezel and that encoder switches actuate freely.