

Beckman®

## REPLACEMENT AND ALIGNMENT OF BECKMAN 189311 DEUTERIUM LAMP USED IN ACTA™ SPECTROPHOTOMETERS

The 189311 Deuterium Lamp is designed for use in all ACTA™ Spectrophotometers but cannot be used in place of the 8333 or 96280 Deuterium Lamps used in the Beckman Model DU, DU-2, DB Series, or DK Spectrophotometers.

To replace and align the deuterium lamp, use the following procedure.

1. Turn off tungsten and deuterium lamps.
2. Turn off instrument power supply and disconnect power cord from outlet.
3. Remove Source Selector Knob by pulling it straight up.
4. Remove source compartment cover by removing the four hex-socket screws.
5. Disconnect the lamp wires from the terminals.
6. Observe how lamp is situated in compartment and then loosen the captive screw, Figure 1, that secures the deuterium lamp mounting to the instrument so the mounting can be removed from the compartment.
7. The lamp is removed from the housing clamps by loosening the clamp screws. The new lamp should be placed in the exact position from which the old one was removed and the clamp screws tightened just enough to hold lamp (do not overtighten screws). The window should be located halfway between the two clamps, Figure 2.

### CAUTION

The deuterium lamp is constructed of thin glass and should be handled with care. AVOID TOUCHING LAMP WINDOW.

8. Place the mounting (with new lamp) in the source compartment and secure it with the captive screw. The lamp window must be pointed toward the focusing mirror.
9. Connect lamp wires to terminal block as shown in Figure 1. The fourth terminal, marked RED (Hg), is used with the 189313 Mercury-Neon Lamp.

### CAUTION

Always use a pair of UV-absorbing protective glasses when working with the deuterium lamp.

10. BE SURE THAT DEUTERIUM LAMP SWITCH IS IN OFF POSITION, and then restart instrument and fire lamp.
11. Turn Deuterium Lamp Switch to WARMUP for a period of 3 to 5 minutes. Then turn switch to START (5 seconds maximum) and release it.
12. Place the instrument in single-beam mode, turn Function Switch to DISPLAY, Shutter Control to S OPEN R CLOSED, and Source Selector Knob to DEUTERIUM.
13. Turn Wavelength (Wavenumber) Selector to obtain 250 nm ( $40,000 \text{ cm}^{-1}$ ) and adjust Dynode Volt Control to obtain 400 volts on Dynode Voltmeter.
14. Adjust Slit Width Selector until 1.000 A is reached. Adjust deuterium focus adjustment screw, Figure 1, until readout begins to decrease and then increase. Return the screw to the point where the minimum value is reached.

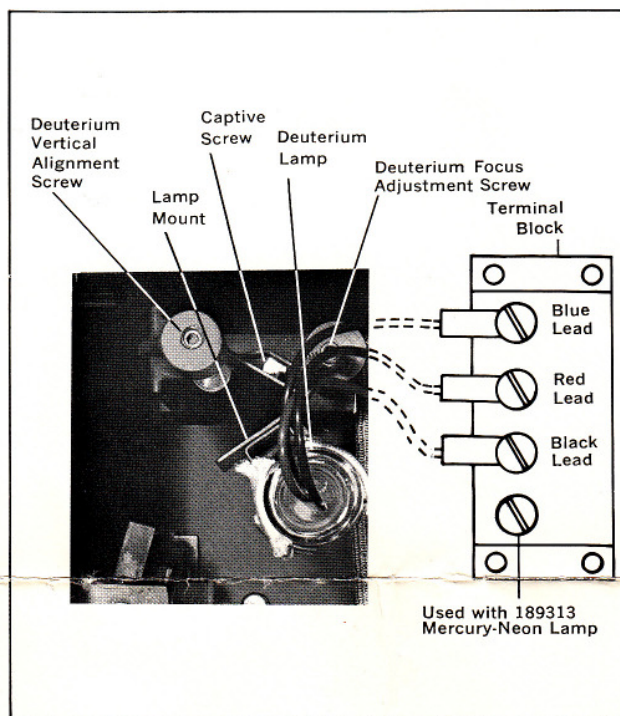
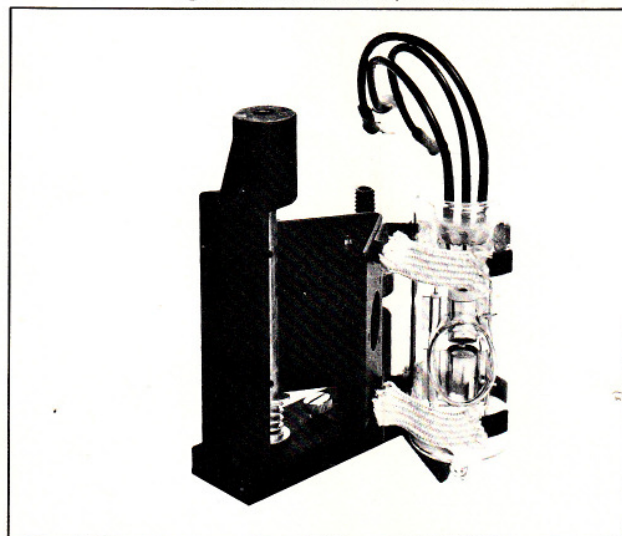


Figure 1. Source Compartment

Figure 2. Deuterium Lamp in Mount



15. Repeat Step 14 with the deuterium vertical alignment screw, Figure 1, and the deuterium horizontal alignment screw, Figure 3.
16. Replace the source compartment cover and secure it with the screws removed in Step 4.
17. Replace the Source Selector Knob.

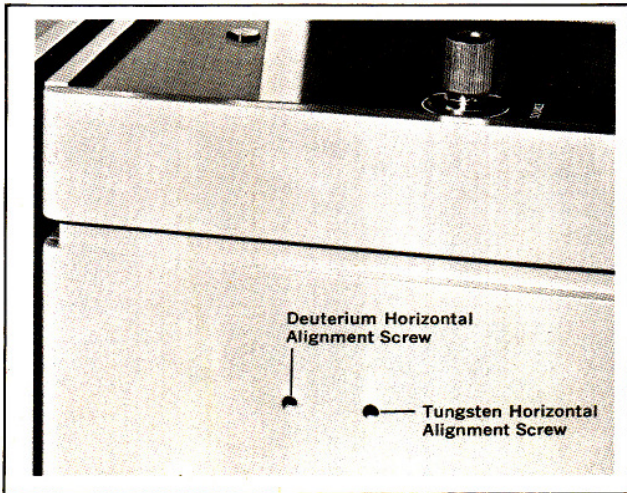


Figure 3. Horizontal Alignment Screws