

# Illuminating the IC-7200 Front Panel

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Unlike transceivers of the past, today's low and mid-range performance radios have no illuminating character other than a single LCD display that crams all functional indicators into an area the size of two postage stamps. With the arrival of my IC-7200, thoughts focused around improving night-time operation. After three attempts to fabricate an external illumination system, high intensity LED lighting came of age. Internal back-lighting was impossible due to limited space and lack of directional LEDs. This version is not intended to be mounted internally or on any particular device, but externally as an accessory supported above the device. Easily duplicated using a shelf or mounted to an overhead panel, it is a perfect accessory for Go-Kits as well as illuminating rack-mounted audio systems. Figure 1 below, shows the end result mounted above the Icom IC-7200.



**Figure 1 - IC-7200 Front Panel Illumination**

Figure 2 below shows the Sylvania 72463 Light Flute. It consists of four directional super LEDs wired between three AAA batteries (included). Rated for 30 hours of operation, it measures 8<sup>3</sup>/<sub>4</sub> inches long and 5/8" inches in diameter. A self-adhesive, magnetic wall/shelf mount is provided but was not used in this application. Obtained from a local Home Depot Center (homedepot.com) for around \$14, the internals are accessible since battery replacement is required. Removing the right end-cap allows access to the removable battery/LED tray that slides out as one piece. The opposite, non-removable, end-cap supports the push-on/push-off switch. In all, this is the perfect device in a perfect size for illuminating any piece of radio equipment, and does an excellent job as the photo above shows.



**Figure 2 - SYLVANIA –72463 LED Light Flute - Magnet Mount Not Shown**

Figure 3 illustrates how two black and two white 5/8" cable clamps are secured to a shelf above the radio. Although they provide a snug fit, they still allow vertical rotation for optimum lighting. White clamps diffuse the light, and the black clamps block two of the LEDs. The black clamp on the far left was necessary to inhibit reflection from the microphone connector while the number three clamp prevents washout of the transceiver's LCD display. This particular order proved optimum for the IC-7200.



**Figure 3 - Cable Clamp Mounting**



The shelf pictured above in Figure 3 slides front to back slightly to allow some lighting variation. For those interested in duplicating this arrangement, the rear of the Light Flute is positioned equal to the edge of the front bezel while the bottom of the Flute is positioned equal to the top of the bezel. LED #1 is centered over the MIC connector; LED #2 illuminates the two vertical controls and the area above the power switch. LED #3 is blanked to prevent LCD washout, and LED #4 is over the center of the keypad.

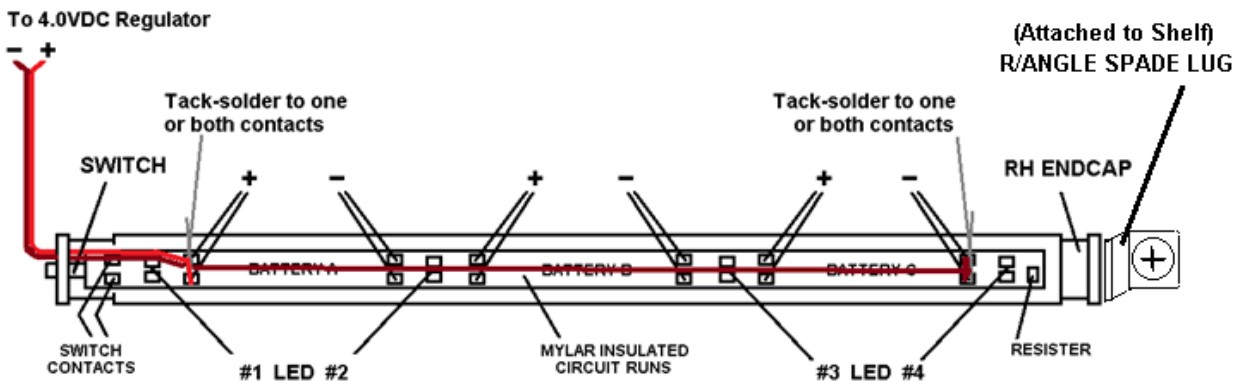
In Figure 4 to the right, secured to the tray just passed clamp 4, is a right-angle spade-lug. It is the type used to terminate a removable ground wire. Its purpose here is to resist movement when the power switch is depressed. To remove the Light Flute for battery replacement, the entire Flute is pushed out to the left.



**Figure 4**

As stated above, the Sylvania Light Flute is battery powered. Batteries could be used but during an extended period a second Flute with fresh batteries would be preferred [slide it out; slide another in]. In the amateur radio environment our station power supplies are more than suitable to supply power in lieu of internal batteries. After the Light Flute install was completed, I proceeded to do just that.

The first test step to battery independence is to pull the three AAA cells by unscrewing the right-hand end-cap and pushing the internal plastic tray from the aluminum tube. After the batteries are removed, the vinyl switch-button was pulled out and discarded. This exposes the switch activator which will now be activated with the nail on the index finger. That switch will be required to shut off the Light Flute during daytime hours when necessary.



**Figure 5 - SYLVANIA Light Flute Tray  
Top View, Connection Diagram with Added R/Angle Spade Lug – See Text**

Figure 5 is a wiring pictorial of the tray depicting a pair of red/brown wire connections. The tray must be carefully wired to a pair of thin flexible leads such those found on small Wall-Warts. Thin size wire leads are important in order to feed through the left end-cap away from the switch activator. Be sure to maintain enough lead length on both ends in order to reach your power source and the far left end battery contact. Position the wire leads toward the back-side of the switch activator. Excess slack will be pulled out shortly.

Figure 5 also identifies the correct +/- contact points. The internal etched-wiring is insulated by a Mylar film running the length of the tray, so the Mylar strip must be cut next to each contact. Also, the external wire should run above the Mylar film. The goal was to create the smallest solder joint heated in the shortest time possible; as quickly as possible. Electrical tape covered the solder connections for insulation from the aluminum tube. Carefully pull the remaining slack through the left end-cap ensuring both leads will not impede switch travel. The aluminum tube should then be slid over the tray from right-to-left toward the switch-end. When the tray is fully inserted and correctly “keyed” to the left end-cap, meter each wire lead to insure the contacts are not short-circuited to the tube. If all is well, replace and secure the left end-cap.

**Figure 6 - Auxiliary LED Regulator – See text below**

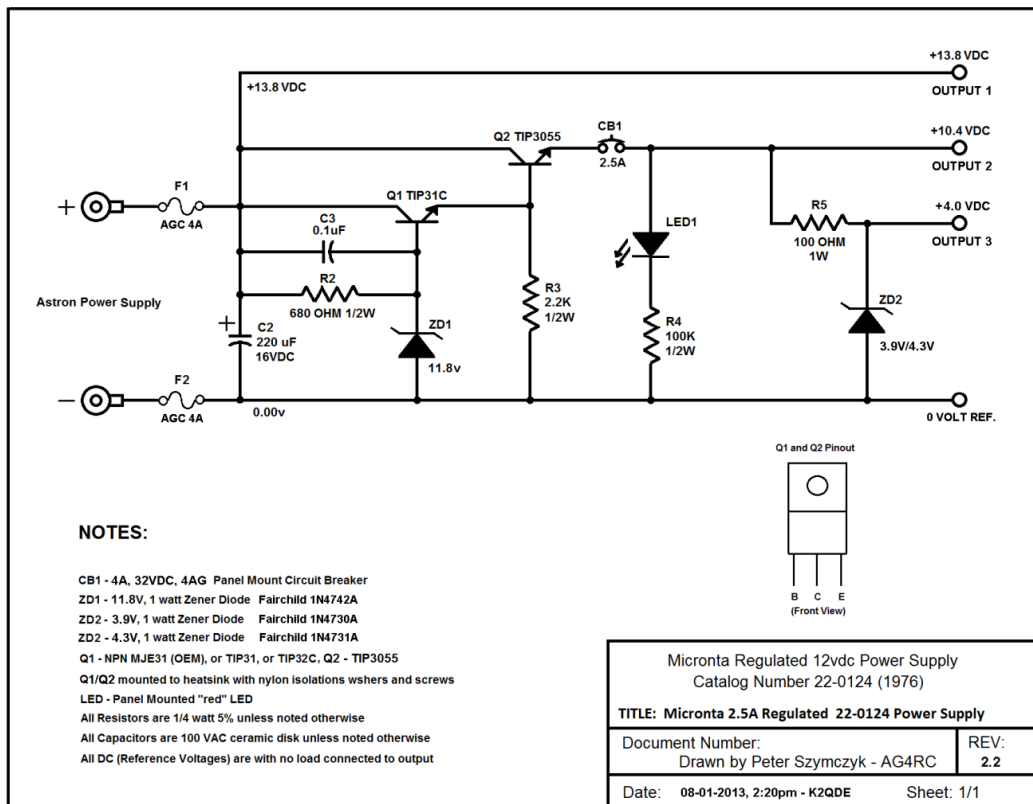


Figure 6 depicts my auxiliary regulator. It is a stripped-down, modified Radio Shack 22-0124 power supply used only to power LED station lighting such as an SWR meter, clock, etc [I don't use Wall-Warts]; thus all LEDs are controlled via the station power supply. Since 4.5 volts are required, a 4.3v zener diode [1N4731A] is fine, but a 3.9v diode [1N4730A] (off output 3) was used. With the 3.9v diode a slight decreased intensity was noticed over the original batteries, but LED life expectancy should increase as LED intensity fades with age.

As Figure 1 above shows, white clamps may produce some glare as it illuminates an operating position. “Rolling” the Light Flute within the clamps will adjust illumination to a comfortable level, eliminating the need for a desk lamp.