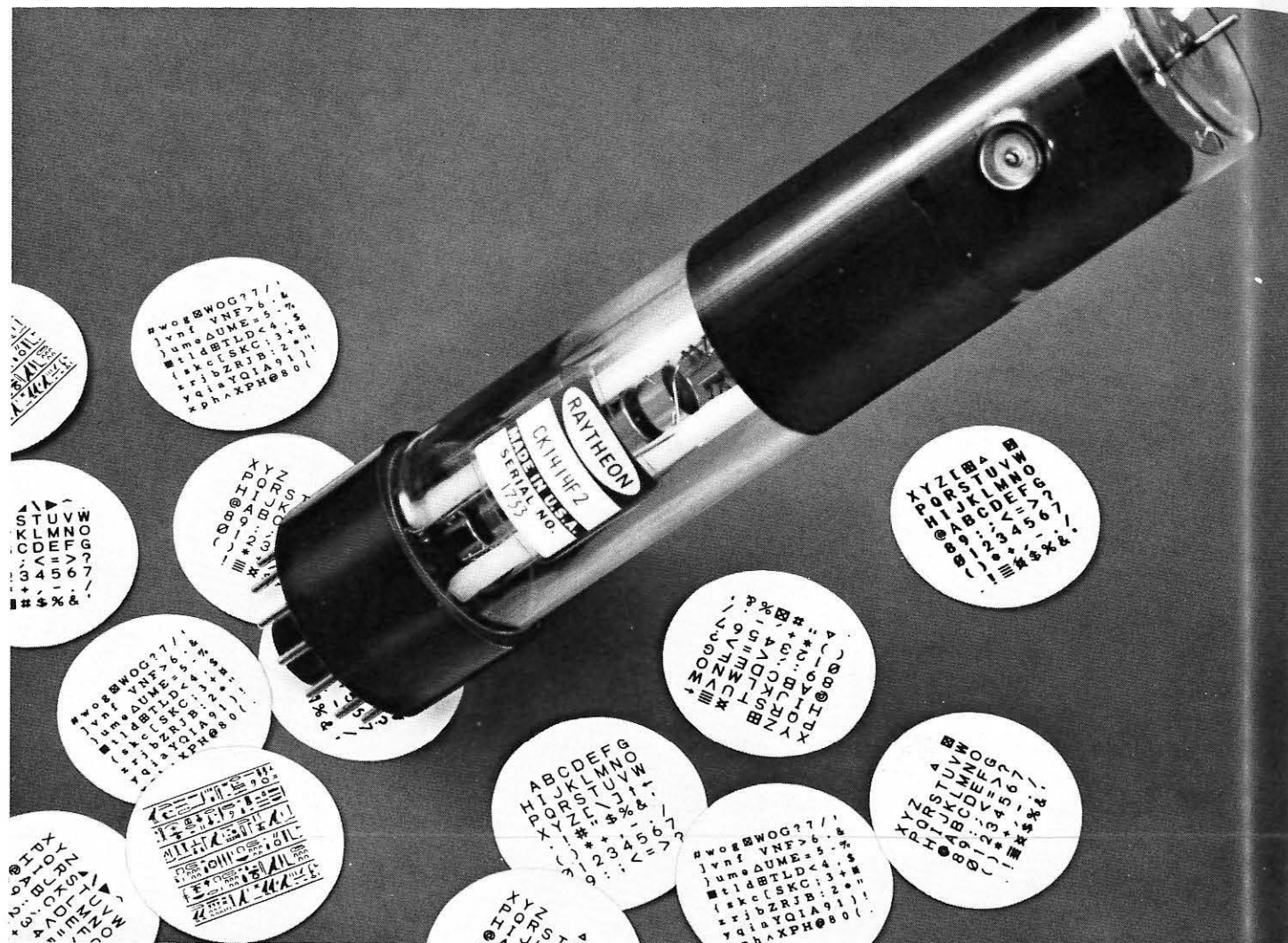




## Data Display Devices from Raytheon



### A Symbolray\* monoscope can generate almost any presentation you can think of. (Hieroglyphics, anyone?)

With a Raytheon Symbolray, you can meet almost any data display requirement for different characters and/or symbols—ranging from standard ASCII† to custom data displays and even hieroglyphics. And we can meet the requirements with only an inexpensive change in the target font design.

**An economical method of generating characters.** The Symbolray monoscope provides a much more economical method of generating displays than using circuit cards. Only 2" by 12", it costs less than \$100 in quantities of 1,000.

**The output of the Symbolray** is obtained by electrically deflect-

ing the electron beam to the desired characters on the targets. The characters are scanned sequentially with a small TV raster. The display cathode-ray tube, on which the output is viewed, is scanned in synchronism. The monoscope uses electrostatic deflection and focus.

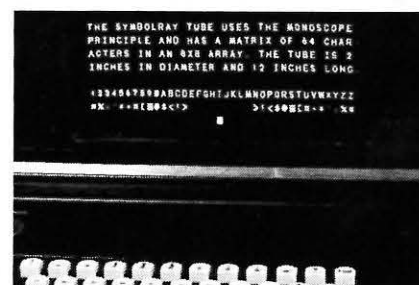
**Full messages can be displayed**—as shown at right—when the Symbolray method is used with buffer memory techniques. The monoscope is currently available with 64 and 96 character matrices.

Raytheon Dataray\* CRTs include screen sizes from 7" to 24". Electrostatic, magnetic and com-

bination deflection types are available for writing alphanumeric characters while raster scanning.

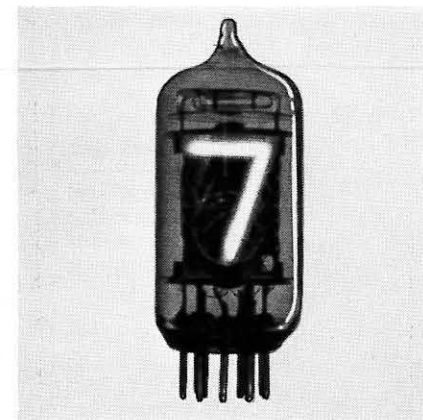
**For Symbolray data**—or a demonstration—call your Raytheon regional sales office. Or write: **Raytheon Company, Components Division, Quincy, Mass. 02169.**

†American Standard Code for Information Interchange.

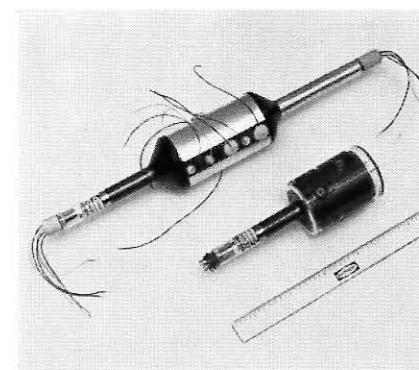


**New Raytheon Projectoray\* Tube** produces more than double the light output of standard projection-type cathode ray tubes. The tube's output results in a light level of 15-foot lamberts on a 3' x 4' lenticular screen. Expected minimum operating life is 500 hours, 20 times the life of a standard projection tube.

The Projectoray's high light output and long life are due to its novel design. The design incorporates liquid cooling of the phosphor backplate. This allows the phosphor to be energized with a very intense electron beam. At high beam levels, very high peak light output is obtained. The light image is projected through a 5" optical window in the face of the tube. The electron gun is set at an angle to the phosphor and the deflection system compensates for keystone effects.

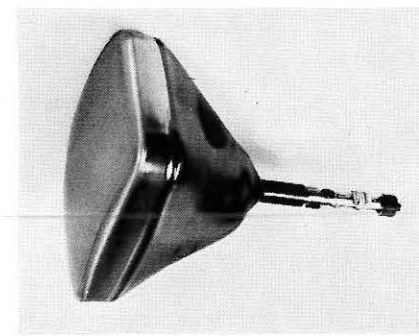


**Datavue\* Side-View Tubes.** New Type CK8650, with numerals close to the front, permits wide-angle viewing. These side-view, in-line visual readout tubes display single numerals 0 through 9 or pre-selected symbols such as + and - signs. Their 5/8"-high characters are easily read from a distance of 30 feet. Less than \$5 each in 500 lots, they also cost less to use because the bezel and filter assembly can be eliminated and because their mating sockets are inexpensive. Many end-view types of Datavue tubes are also available.



**Recording Storage Tubes.** The two new designs shown utilize miniaturized guns and necks to provide high deflection and focus sensitivity, resulting in savings in coil and power supply weight and size. They provide Kiloline resolution, long storage and fast erase capability. The single-gun version is Type CK1537 and the dual-gun version is Type CK1535.

Raytheon's complete line of electrical-output storage tubes feature high resolution and non-destructive reading. Information can be written and stored by sequential techniques or by random-access writing. Complete, gradual or selective erasure is possible.



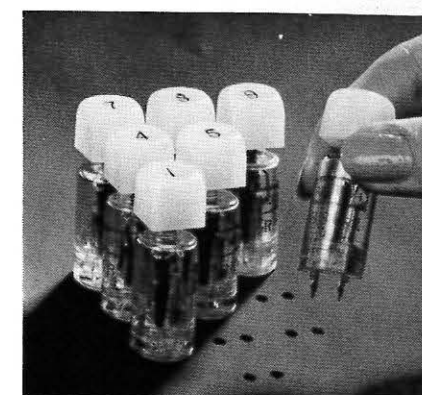
**Dataray\* Cathode Ray Tubes.** Raytheon makes a wide range of industrial CRTs—including special types—in screen sizes from 7" to 24". Electrostatic, magnetic, and combination deflection types are available for writing alphanumeric characters while raster scanning. All standard phosphors are available and specific design requirements can be met. Combination deflection or "diddle plate" types include CK1395P (24" rectangular tube), CK1400P (21" rectangular), and CK1406P (17" rectangular).

For literature, call your Raytheon regional sales office. Or write to **Raytheon Company, Components Division, Quincy, Mass. 02169.**

\*Trademark of Raytheon Company



**Industrial Components Operation—A single source for Circuit Modules/Control Knobs/Display Devices/Filters/Hybrid Thick-Film Circuits/Industrial Tubes/Optoelectronic Devices/Panel Hardware**



**New Keyboard Switches.** These keyboard switches—an original Raytheon design—are low cost yet extremely reliable. They are ideal for computer input/output devices, learning and business machines, and other advanced information and control equipment.

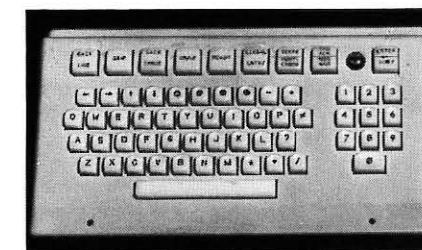
Just a featherlight (2 1/2-oz.) touch activates the switch, providing momentary contact at a current rating of 0.25A, 32V.d.c. Life expectancy of the dry reed type is more than 100 million cycles. Bounce is less than 250 microseconds. Yet, these switches cost less than \$1 in production quantities.

The contact pins snap into 0.125" PC board, locking the switch firmly in place for automatic flow soldering—thereby reducing assembly time and costs.

All switches are made of high-quality materials: polycarbonate plastic, stainless steel, beryllium, copper and noble metals. Bases can be flat or sloped to a 10° angle.

The switches are available with a variety of standard and custom cap shapes, sizes, colors and alphanumeric. Caps are hot die stamped, cured and backed with epoxy coating to provide wear resistance and reduce glare.

Raytheon key switches are available in single- and double-level dry reed types and in single- and double-level wipe-action types.



**Complete, custom-made keyboards**—using the switches described above—are also available from Raytheon. These keyboards can be designed, built and shipped to you in minimum lead time. All assemblies are supplied with alphanumeric, symbols and coding to your specifications. They are also available with data lines, electronic interlock, connector to external power sources, and with or without case.