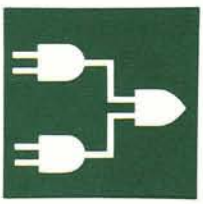
DISPLAY SYSTEMS FROM

Burroughs



Burroughs Corporation

INFORMATION DISPLAY

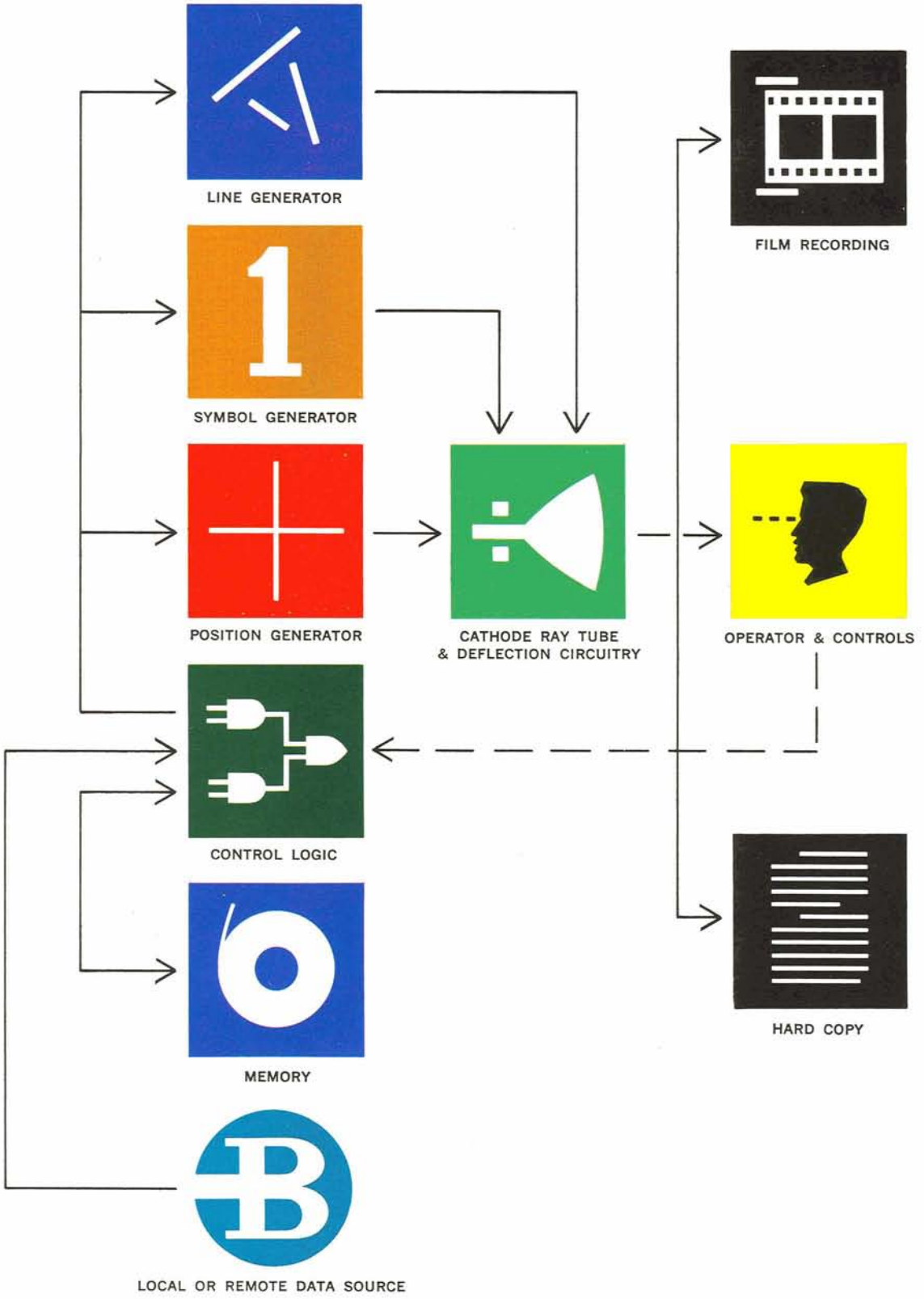
Advances in data processing have created a need for devices capable of displaying large amounts of complex information in ways useful to human operators. Recognizing the importance of such devices for effective decision making, Burroughs Corporation has pioneered in the research and development of electronic character generation and related display techniques.

Today, Burroughs is a leading manufacturer of display devices ranging from microfilm recorders and tiny NIXIE® indicator tubes to cathode ray tube (CRT) consoles and large screen wall displays. Hundreds of CRT displays have been delivered for a variety of applications including the most advanced military command and control systems. This brochure provides a glimpse of some of the systems which have been prepared to meet command and control, message processing, air traffic control, microfilm recording, information retrieval, and large group display requirements.

Burroughs approach to display system design is based on the principle of functional modularity. Display systems of any size and type are readily implemented by selecting standard modules (line generators, position generators, memory modules, etc.) and combining them in the proper configuration to meet the system requirements. This use of functional building blocks, designed and tested to meet military standards, permits the designer to choose the exact elements which he desires and allows the rapid and economical assembly of custom display systems.

Shown opposite is the block diagram of a basic display system. On the following pages the block diagrams of typical systems will be shown along with their technical specifications to aid the user in selecting the proper modular display system to meet his requirements.

BASIC BLOCK DIAGRAM



COMMAND AND CONTROL DISPLAYS

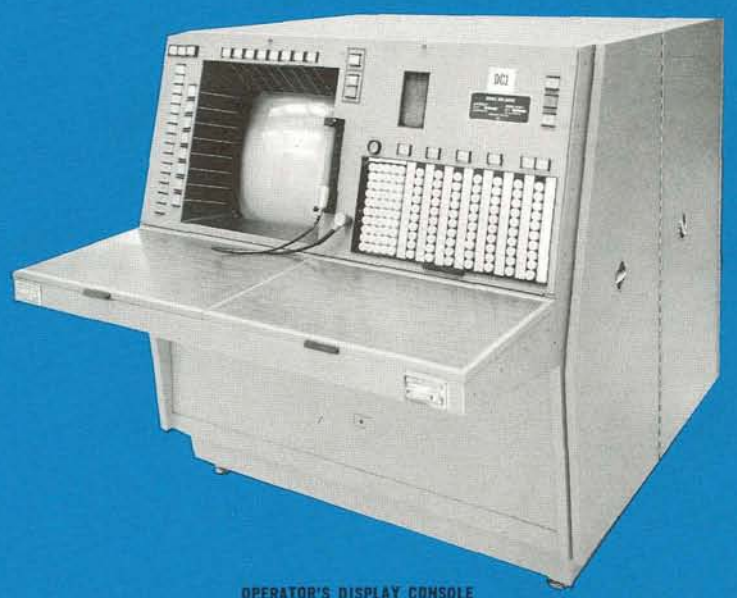
Burroughs is producing a complex of equipment for the Air Force known as the Radar Course Directing Group AN/GSA-51. This equipment serves as the control center for a new, semi-automatic, air defense system called 416M or BUIC (Back-Up Interceptor Control). Located at selected sites in the U.S. and Canada, the BUIC system provides for the real-time management of air battles in defense of North America in the event that existing SAGE air-defense direction centers become inoperative.

Major elements of each Radar Course Directing group are Burroughs D825 data processing system and 6 data display consoles. The consoles provide a visual presentation of information obtained from the data processing system for use in monitoring and evaluating tactical air situations. The equipment displays geographic maps, aircraft tracks and associated data, locations of retaliatory weapons, and predicted intercept points for use by personnel in making command decisions. Information is displayed in the form of vectors, numerical, alphabetical, and pictorial symbols.

Each BUIC data display contains the following modular building blocks: Line generator, symbol generator, position generator, control logic, memory, a 19-inch situation display and a five-inch tabular display, both utilizing 64 unique alphanumeric and special symbols. The situation display presents information on elements of the area under surveillance such as the location of targets and interceptors, references to boundaries and other fixed geographical features. The tabular display presents alphanumeric messages such as weapons status, weather conditions, and responses to operator inquiries.

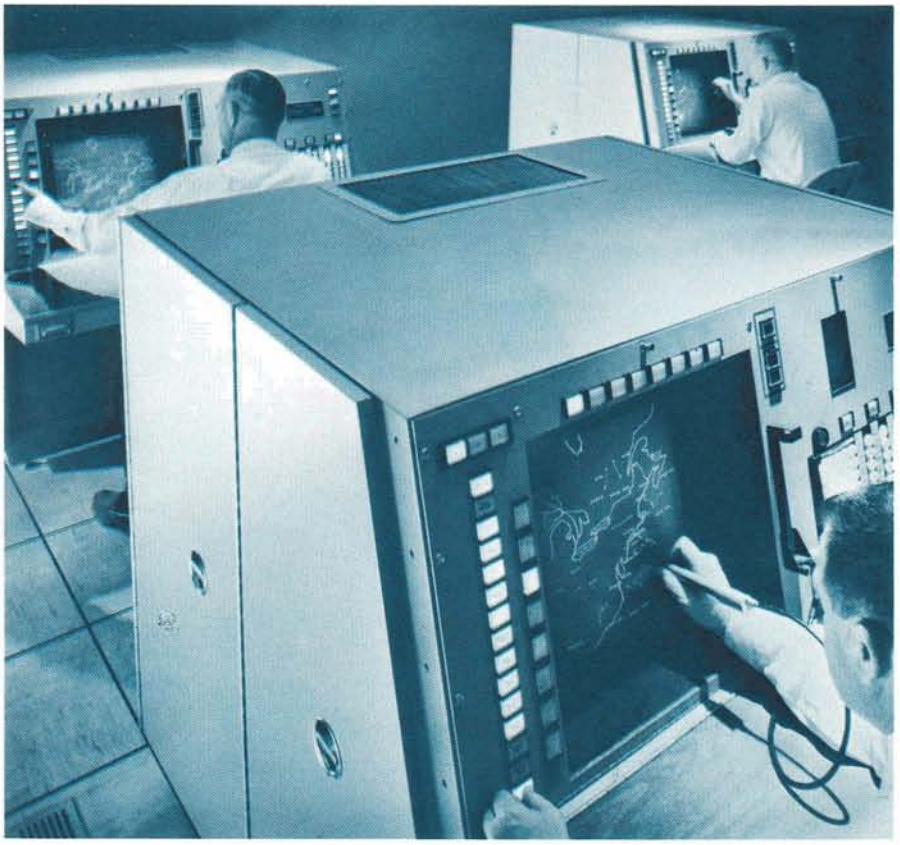
The console keyboard, containing 120 push button switches and a light pen, enables the operator to insert requests and commands into the data processing system. The keyboard is used with the light pen for target or interceptor references on the situation display, or it can be used separately for other requests and commands.

The console utilizes two types of data: operational data and test pattern data. Test pattern data is continuously available to establish confidence in the operation of the console and for maintenance purposes. Operational data is of two types: forced information from the data processing system and information available to the operator by category selection. Examples of forced information are messages for the operator's immediate attention and responses to the operator's requests concerning targets. Information selected by category includes target tracks and radar and geographical data.



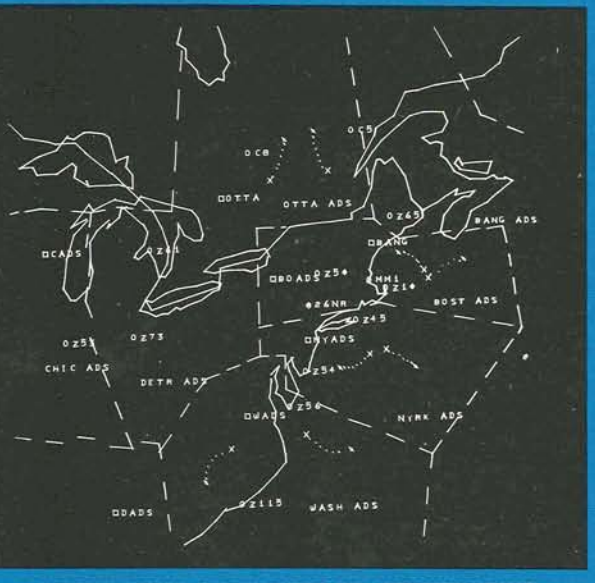
OPERATOR'S DISPLAY CONSOLE

TABULAR DISPLAY

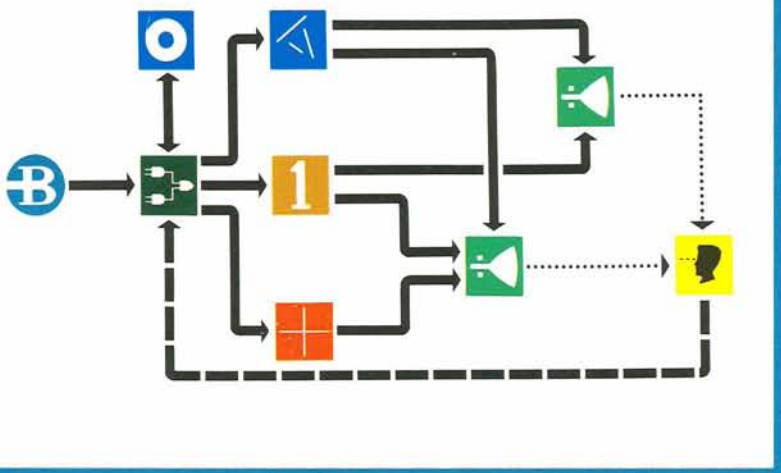


DISPLAY SPECIFICATIONS

Symbol Generation Method—Core matrix, 20 strokes at 0.1 μsec/stroke
Repertoire—64 symbols
Symbol Size (Nominal)—0.125″ high x 0.125″ wide
Symbol Generation Time—2.1 μsec/symbol
Line Generation Method—Constant time/line, with automatic brightness compensation
Line Length Ratio—20:1 (2″ max. in expand mode)
Deflection Speed Variation—20:1 (brightness compensated)
Line Writing Speed—850,000″/second for 2″ vector on 19″ CRT
Viewing Area—12.5″ x 12.5″ (19″ CRT); 4.1″ x 1.2″ (5″ CRT)
Maximum No. of Symbols at One Time—6144 (random positioning)
CRT Types—19DXP28; 5EKP28 (electrostatic deflection)
Line Brightness—10 foot-lamberts measured at specified line width of 25 mils, with line writing speed of 850,000″/second and refresh rate of 30 frames/second
Contrast—10:1 ratio (min.) with 5 foot-candles vertically incident on work surface under normal operating conditions
Symbol Writing Speed—310,000″/second
Frame Regeneration Rate—30 frames/second
Gross Positioning Time in Specified Symbol Format—2.5 μsec (random positioning)
Display Regeneration Memory—Two magnetic drums at 12,288 words/drum per six consoles
Special Features—X1, X4, X8 expansion in any of 64 sectors; light pen



SITUATION DISPLAY SHOWING TARGET AND INTERCEPTOR TRACKS



COMMAND & CONTROL DISPLAY SYSTEM BLOCK DIAGRAM

MESSAGE HANDLING DISPLAYS

An automatic message processing system has been developed for the United States Army to significantly reduce the time for origination, processing and delivery of messages. In the system's operational environment, staff officers are responsible for the review of originating and terminating messages to ensure correctness and validity and to direct distribution.

To facilitate the review, messages are automatically displayed in continuous scroll-like fashion on electronic display consoles in order of precedence and time of arrival. The message reviewers can make appropriate annotations, specify local distribution, or direct the message to service positions for rework or cancellation by means of a typewriter and keyboard matrix provided on the console. After a message review has been completed, automatic processing and distribution is resumed.

The message display console, which contains a symbol generator, and CRT, was designed without specialized memory and control in a form widely adaptable to a variety of data sources. Displayed symbols are presented in a typewriter format on a 21-inch CRT in the order received. A flicker-free message is displayed under full daylight ambient light conditions. The 64-symbol repertoire is placed in a format of 18 lines of 80 symbols each. Control logic and memory are contained within a Burroughs D825 modular data processing system, which provides the overall automatic supervision of the message processing system.

DISPLAY SPECIFICATIONS

Symbol Generation Method—Polar programmed, diode matrix (18 lines)

Repertoire—52 symbols

Symbol Size (Nominal)—0.2″ high and 0.15″ wide

Symbol Generator Time—13 μsec (average alphanumeric)

Viewing Area—12″ x 17″ (circularly polarized filter with anti-reflective coating)

Maximum No. of Symbols at One Time—1440; 80 symbols/line, 18 lines/frame (typewriter mode)

CRT Type—21EYP4 (aluminized)—magnetic deflection

Line Brightness—50 foot-lamberts measured at specified line width of 20 mils, with symbol writing speed of 50,000″/second and refresh rate of 50 frames/second.

Contrast—Specified at 85% minimum (contrast ratio of 5.7:1, measured in office lighting environment of 30 foot-candles incident to desk surface.)

Frame Regeneration Rate—33 (min.) to 50 (max.) frames/second

Gross Positioning Time in Specified Symbol Format—1 μsec symbol-to-symbol; 25 μsec line-to-line (typewriter mode)

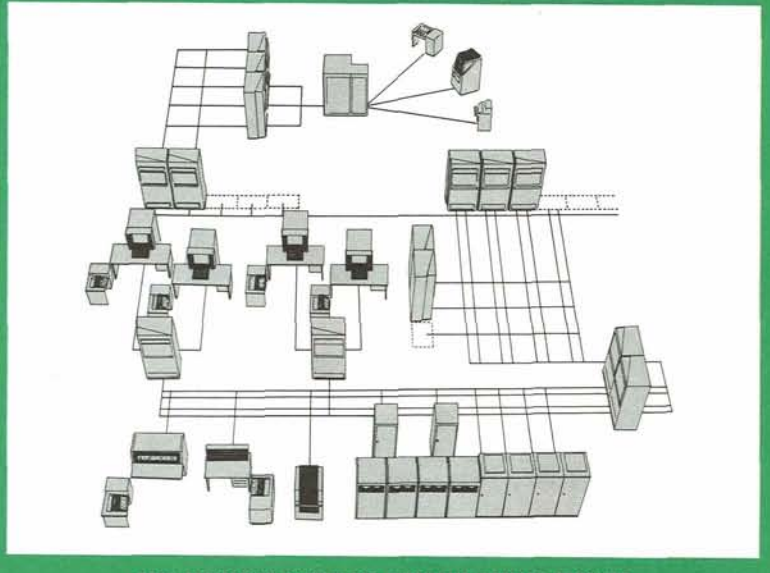
Display Regeneration Memory—Core, 18 bits x 24 words; remote from display

Special Features—Scroll read at line rates from 0.25 second/line to 2.0 seconds per line. This feature allows an operator to view any 17 consecutive lines of an 80 line message by effectively "moving" the message up on the screen.

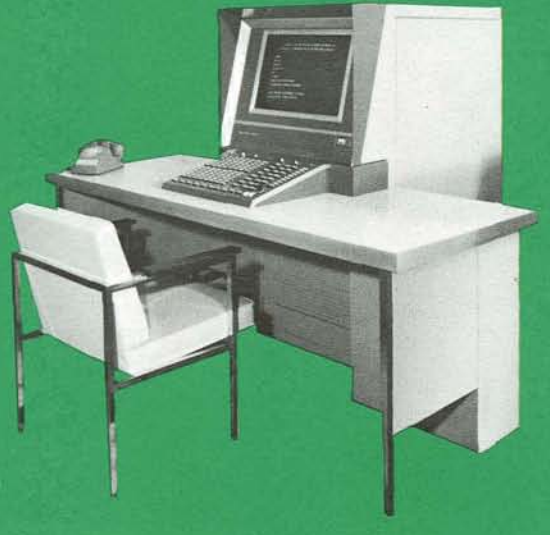
Data Insertion Capability—Typewriter and keyboard matrix

Adjustments—Focus, intensity, character height and width, display height and width.

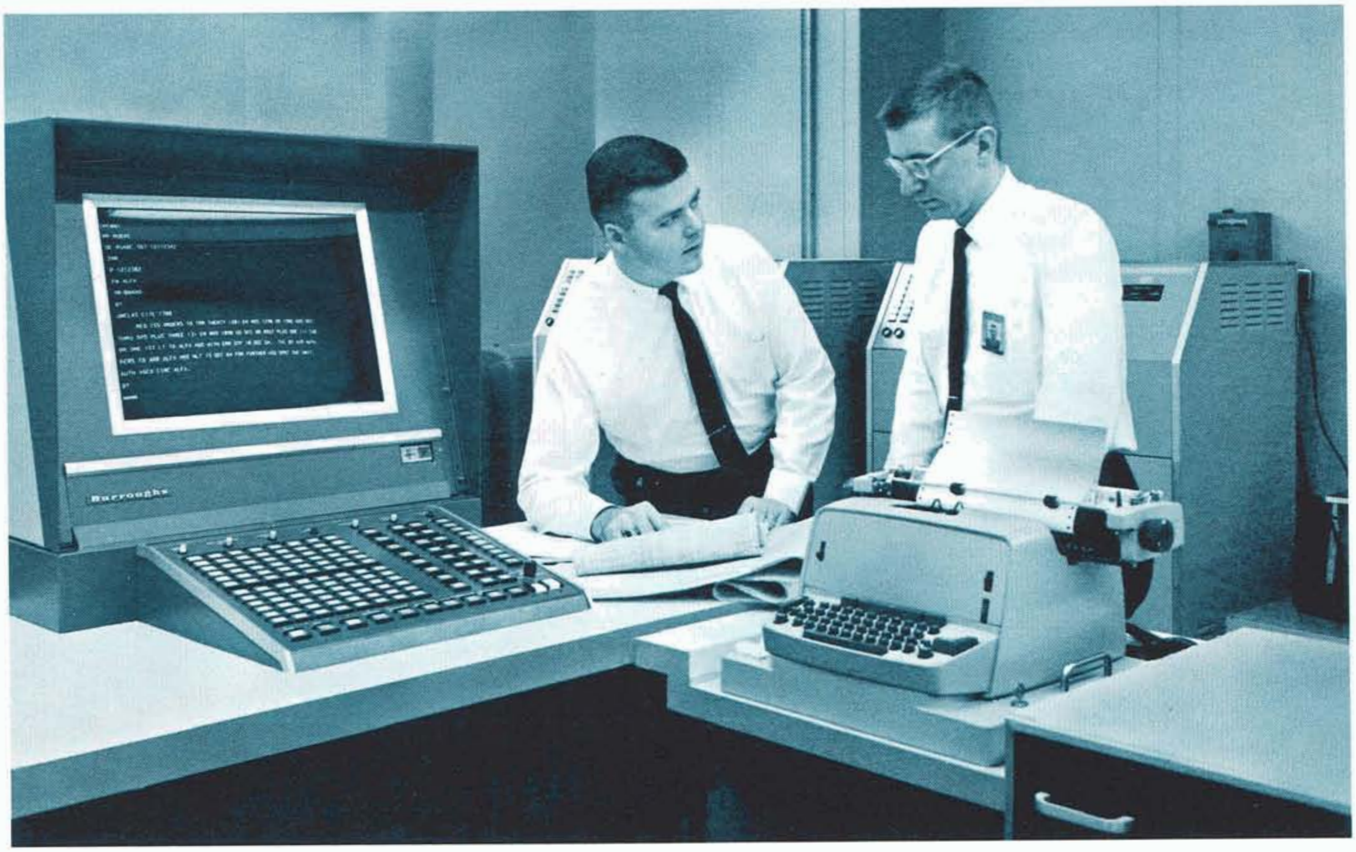
Alarms—Power fault, deflection fault, Z-axis fault. Automatic indication to interface of power fault.



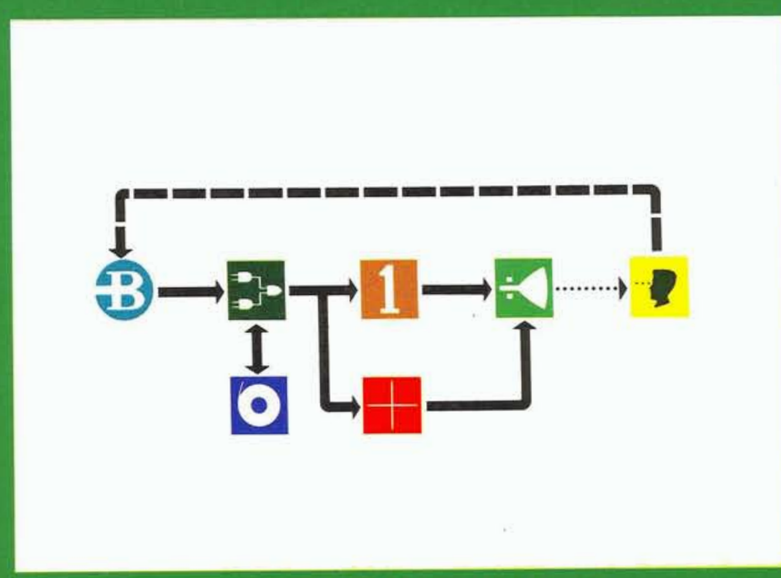
DATA PROCESSING SYSTEM FOR AUTOMATIC MESSAGE HANDLING



MESSAGE DISPLAY CONSOLE



CRT PRESENTATION TO OPERATOR



MESSAGE HANDLING DISPLAY SYSTEM BLOCK DIAGRAM

INFORMATION RECOVERY AND ENTRY DISPLAYS

Display consoles are being utilized in conjunction with a D825 data processing system for a United States Navy application. Computer-generated information is sent to the display consoles under program direction where it is observed by an operator. Based upon the information displayed, the operator may decide to transmit an external message which he accomplishes by operating controls located on the display consoles. The display consoles in this system contain a symbol generator and internal memory in addition to the 17-inch rectangular cathode ray tube.

DISPLAY SPECIFICATIONS

Symbol Generation Method—Polar programmed, diode matrix (18 lines)

Repertoire—52 symbols

Symbol Size (Normal)—0.270″ high x 0.200″ wide

Symbol Generation Time—13 μsec (average alphanumeric)

Viewing Area—12″ x 9″ (circularly polarized and RFI shielded)

Maximum No. of Symbols at One Time—1024; 32 symbols/line, 32 lines/frame (typewriter mode)

CRT Type—17 DWP4 (aluminized)—magnetic deflection

Line Brightness—50 foot-lamberts measured at specified line width of 20 mils, with symbol writing speed of 67,000″/second and refresh rate of 50 frames/second

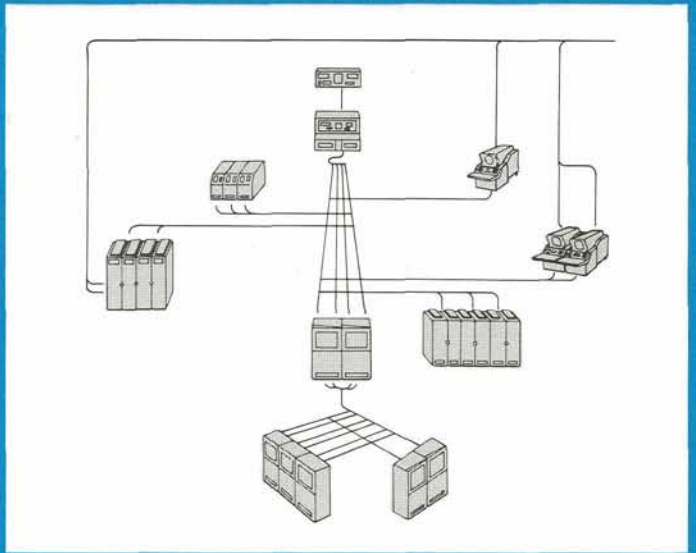
Contrast—Specified at 85% minimum (contrast ratio of 5.7:1) measured with 30 foot-candles incident to desk surface.

Frame Regeneration Rate—37 (min.) to 59 (max.) frames/second

Gross Positioning Time in Specified Symbol Format—2 μsec symbol-to-symbol; 30 μsec line-to-line

Display Regeneration Memory—Core, 14 bits x 512 words; integral with display console

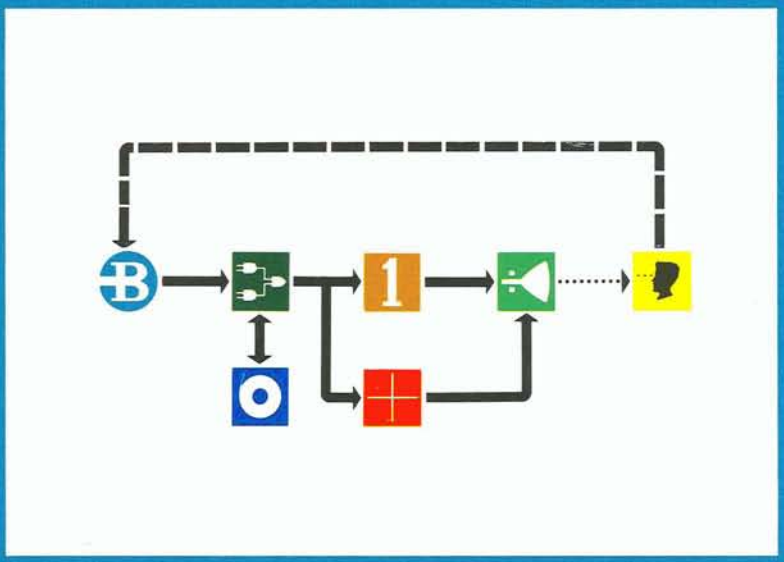
Special Features—Location remote from data source. Audible alarm provided with choice of three frequencies, and volume control. Alarm sounds for 0.25 second under computer control.



DATA PROCESSING SYSTEM FOR INFORMATION RECOVERY AND ENTRY

CONSOLE DISPLAY ASSEMBLY

CATHODE RAY TUBE PRESENTATION



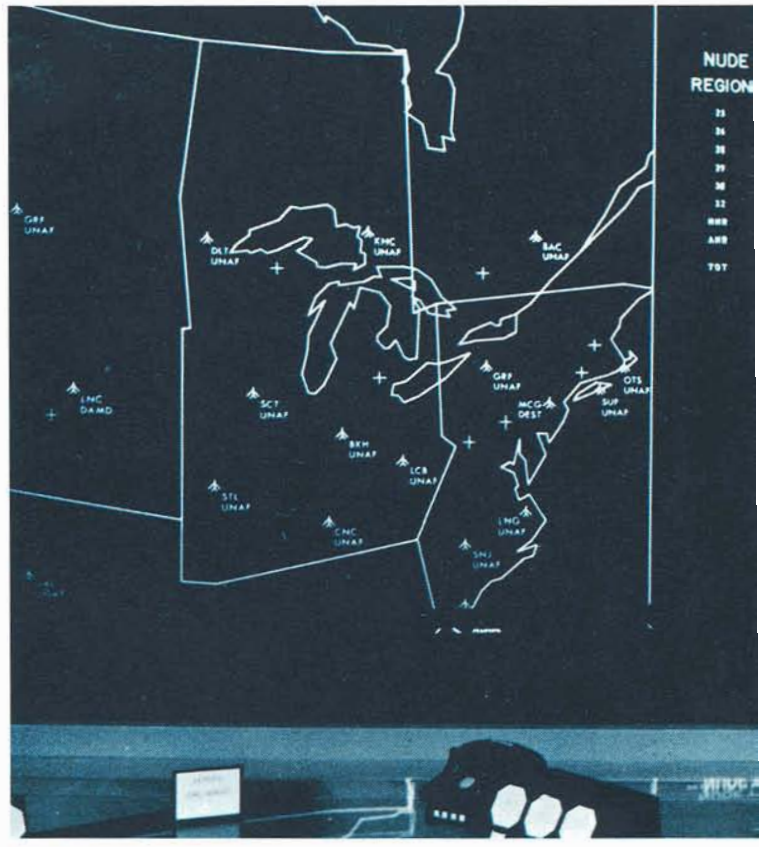
INFORMATION RECOVERY & ENTRY DISPLAY SYSTEM BLOCK DIAGRAM

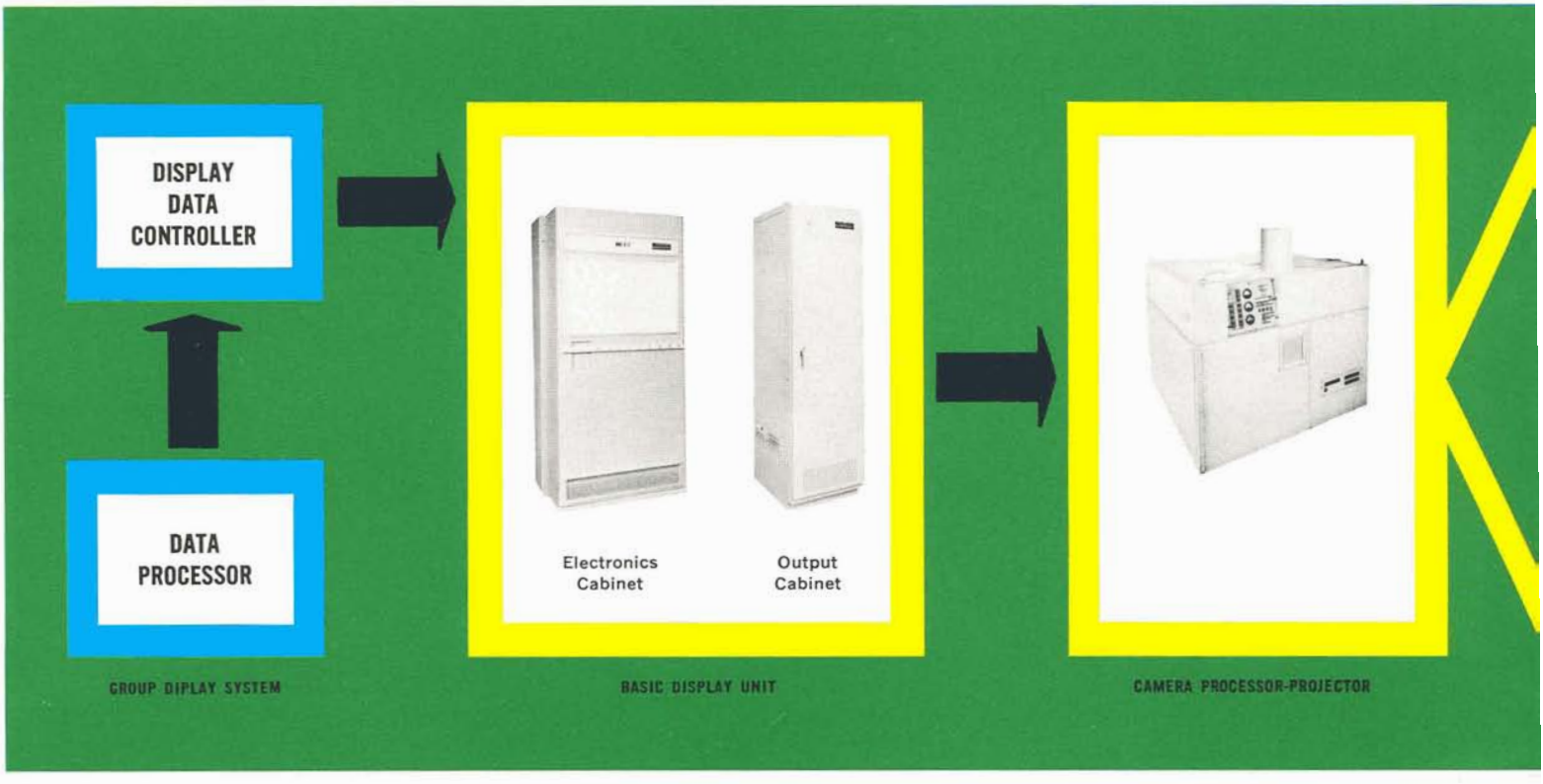
GROUP DISPLAYS

A seven-color electronic wall display has been developed for use in the NORAD Combat Operations Center. The display was supplied by Burroughs in its role as equipment contractor to the Electronic Systems Division of the USAF Systems Command. The display provides CINC NORAD (Commander-In-Chief, North American Air Defense Command) and his staff with the ability to observe and evaluate airbreathing, NUDETS (nuclear detonations), and BMEWS (Ballistic Missile Early Warning System) information as it is obtained by remote electronic surveillance euipment. With this information, vital decisions involving the use of aerospace defense forces can be made.

The display system consists of two elements: the basic display unit (BDU) containing the display generation and control equipment, and the projection unit containing the camera, processor, and projector to produce the large screen images.

The BDU changes the stored information received from the display data controller to any of 128 different type symbols and to map-forming lines that appear on the face of a 5-inch cathode ray tube. The film is automatically developed by the film processor, and the display is projected onto one of the two 12′x16′ wall screens provided as part of the group display. Only ten seconds are required between film exposure by the CRT and the presentation of the seven-color projection upon the screen.

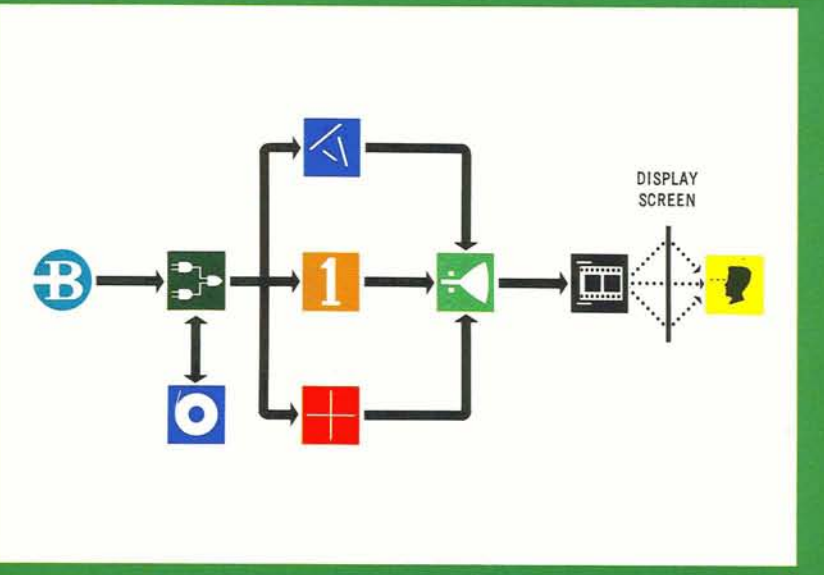




DISPLAY SPECIFICATIONS

Color—Red, blue, yellow, green, cyan, magenta, white
Display Size—Large Screen—12′ high by 16′ wide
Small Screen—6′ high by 8′ wide
Symbol Size (Two sizes are programmable)
Large Screen—2.88″ high x 2.16″ wide & 1.44″ high x 1.08″ wide.
Small Screen—1.44″ high x 1.08″ wide & 0.72″ high x 0.054″ wide.
Maximum No. of Symbols at One Time—1500 symbols and 500 lines
Brightness—10 foot-lamberts viewed normal to center of screen; 4.5 foot-lamberts viewed at 50° to the normal
Contrast Ratio—In excess of 100:1 (Rear projection in controlled ambient)
System Display Rate—10 seconds/frame (max.)
Color Fringing—Less than 0.12 inch on 12′ by 16′ screen
Line Intensity—Constant
Brightness Uniformity—75 percent in "open gate" condition when projecting onto 12′ x 16′ screen at distance of 23 feet
CRT Type—5CEP 11 aluminized—magnetic deflection
Gross Positioning Time in Specified Symbol Format—40 μsec (random)
Display Regeneration Memory—Core, 48 bits x 1046 words
Symbol Generation Method—Polar programmed, diode matrix (18 lines)
Repertoire—128 symbols
Symbol Size, Nominal—.0224″ high x .013″ wide on 5″ CRT
Symbol Generation Time—58.5 μsec to 117 μsec depending on character size
Line Generation Method—Variable time/line; constant brightness
Line Length Ratio—255:1, from 0.006″ to 1.5″ on CRT, selectable in 0.006″ increments
Deflection Speed Variation—√2:1
Writing Speed—1250″/second (lines or symbols)
Viewing Area—2.25″ x 3.00″ on CRT

LARGE SCREEN SITUATION DISPLAY



GROUP DISPLAY SYSTEM BLOCK DIAGRAM

MONITOR DISPLAYS

A monitor display is being provided to the Federal Aviation Agency as part of Burroughs AN/FYQ-40 Common Digitizer for use in the National Airspace System. The Common Digitizer is designed to process raw video and beacon target information as part of the computerized air traffic control system.

The monitor display provides a radar-type presentation of the significant steps during target processing and related data on a cathode ray tube for system monitoring under test conditions and for Common Digitizer maintenance. The monitor is unique in that it operates in either a random access plan position indicator (RAPPI) mode or a plan position indicator (PPI) mode. It provides the ability to monitor the entire system in discrete steps, in real time.

The RAPPI mode provides visual monitoring of processed radar data (range and azimuth) including beacon and search radar targets, and map outlines selected by a AN/FYQ-40 message label. The RAPPI displays target range information for airport surveillance and for air route surveillance radar. The RAPPI contains a built-in symbol generator for displaying 16 symbols to provide a visual indication of the message label, and test switches which can simulate targets (type, range, and azimuth) on the display.

In the PPI mode the display uses a rotating sweep oriented to antenna direction and synchronized with the various antenna speeds. Displayed target information includes beacon, moving target indication, normal and gated video, target complete, and target in process.

DISPLAY SPECIFICATIONS

CRT Type—16 M27P7

Deflection—Magnetic, Fixed Yoke

Modes of Operation—Plan Position Indicator (PPI) with a resolver sweep generator; and Random Access Plan Position Indicator (RAPPI) with random deflection and an X-Y coordinate converter.

Display Interrogation—Light pen

Hard Copy Printer—Type HP-562A with real-time digital clock. 4-6 lines per message, 10 columns, decimal print-out.

X-Y Coordinate Converter—Mercury wetted relays. 10 binary bit range and 10 binary bit azimuth—conversion in 2 *m*sec.

Display Selection—11 categories individually displayed or mixed in PPI mode. 10 message categories individually displayed or mixed in RAPPI mode.

Range Selection—2 ranges selectable, 64 nautical miles and 256 nautical miles.

Display Scale—¼, ½ or full scale

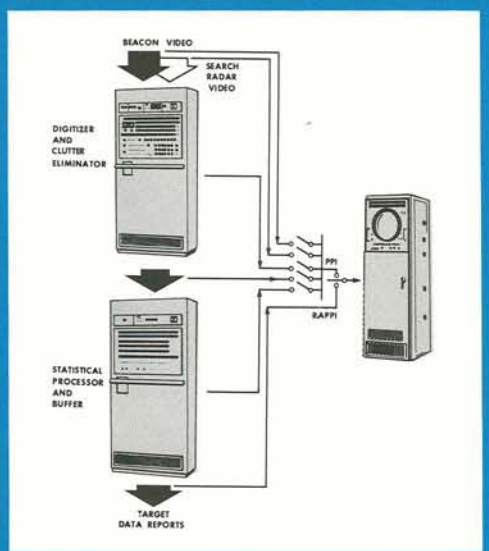
Brightness—Used in normal room ambient illumination

Symbol Generator—Diode matrix

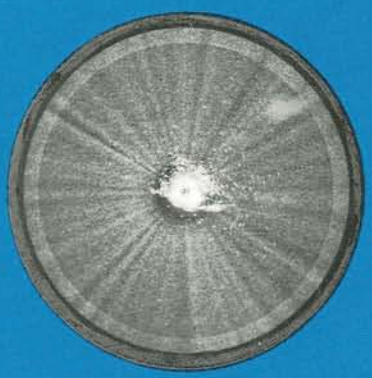
Symbol Repertoire—16 symbols

Symbol Size—⅛" x ⅛"

Special Features—Capable of handling a wide range of scan rates and pulse repetition frequencies.



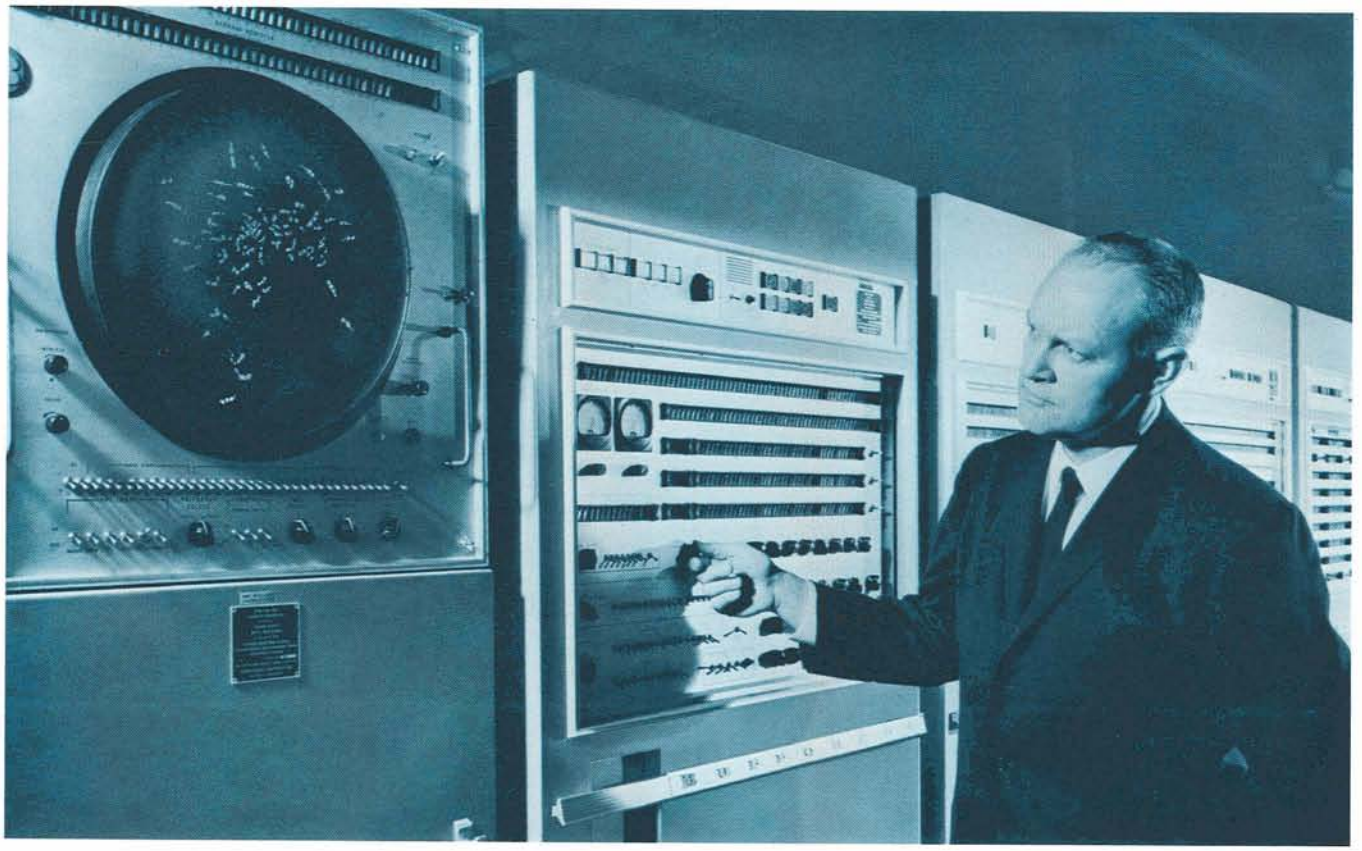
VIDEO DATA PROCESSING SYSTEM



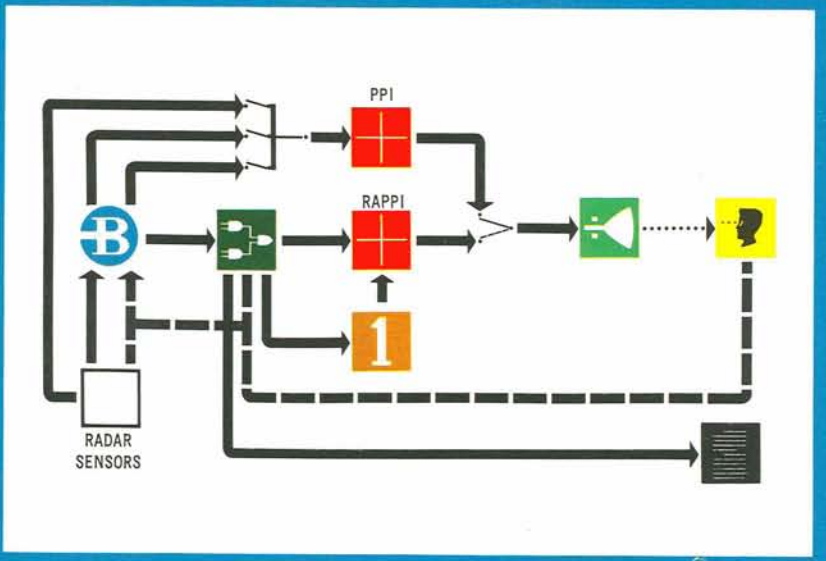
Video Input

Processed Target Video

EXAMPLES OF MONITOR DISPLAYS



Tracks of Processed Target Video



MONITOR DISPLAY SYSTEM BLOCK DIAGRAM

MICROFILM DISPLAYS

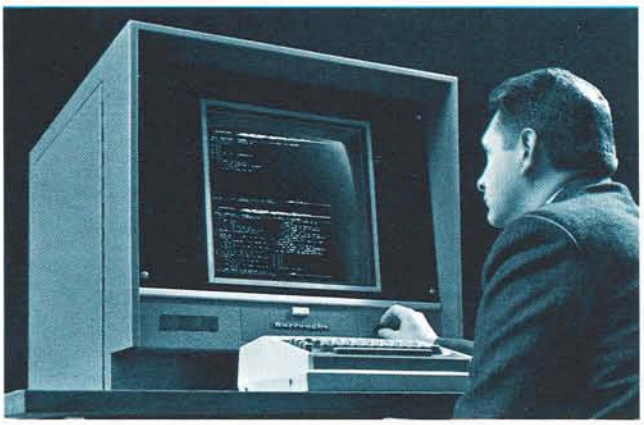
The DIGIPRINT system, consisting of a symbol generator, line generator, CRT, and memory, is a low-cost alphanumeric and graphic information recording system that operates from any digital data source. Computer generated data consisting of symbol and format commands is converted by the DIGIPRINT system to a CRT display which is photographed with the system's special digitally-controlled 16-mm microfilm camera (35-mm option). The camera can also simultaneously photograph an "overlay" that contains basic continuing entries. Up to 10 overlays can be stored. Thus when the recorded information is retrieved, it is "printed" on the forms or maps that were used as overlays. The unit is compatible with 63 kc tape drives on a real time basis.

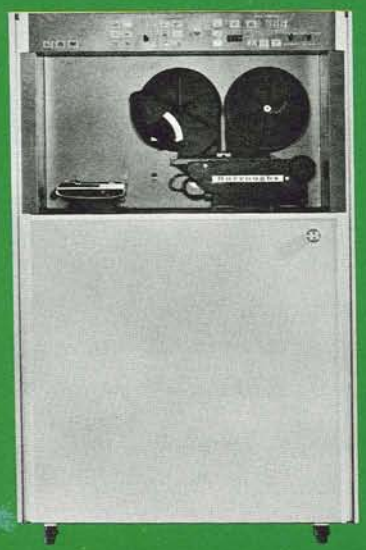
A camera/monitoring system is provided to permit quick confidence checks during long runs. Slave monitors are also available in the form of display consoles using 10", 16", or 21" cathode ray tubes.

The DIGIPRINT system supplies its own page formatting without burdening the data source with this requirement. It provides automatic positioning of 135 symbols per line, up to 80 lines per page. As options, typewriter functions such as automatic carriage return, line feed, tab commands, and variable spacing can be included. Individual symbols can be rotated 90° by program control. To accommodate special situations, all symbols and formatting can be rotated 90° to permit fuller use of the available film area, with attendant film savings. Formatting compatibility with standard line printers is available.

A specific frame of microfilm can be automatically coded for retrieval by standard commercial viewers using optical decoding. Reels or groups of frames can be rapidly identified without the use of a viewer or other optical assistance when recorded with ID labels.

DIGIPRINT systems are currently in operation in a number of government agencies where they are being used to record alphanumeric information. An adaptation of the system, called DIGIFAX, is being operated in conjunction with facsimile equipment to produce and distribute computer-drawn weather maps.





DIGIPRINT CONSOLE

Federal Stock Number	FEDERAL SUPPLY CATALOG	
FSC FSCM	ACTIVITY ITEM DESIGNATOR	TYPE OF II / KIND OF TRANSACTION / SEX CODE / FED OF NO.
5905 051-3965	BD-BD-16133	1 / N22 / - / 00007¢

1. RESISTOR, FIXED, WIRE WOUND
2. BODY STYLE NO. 14, RDG 2
3. INDUCTIVE WINDING
4. RESISTANCE DATA
   A. 3.01 OHMS TOTAL RES
   B. PORM 1 PCT TOLERANCE
5. POWER RATING
   A. 3 W POWER DISSIPATION
   B. 275 DEG C, MAX CONTINUOUS OPERATING TEMP
   C. 25 DEG C, AMBIENT TEMP
   D. N/A

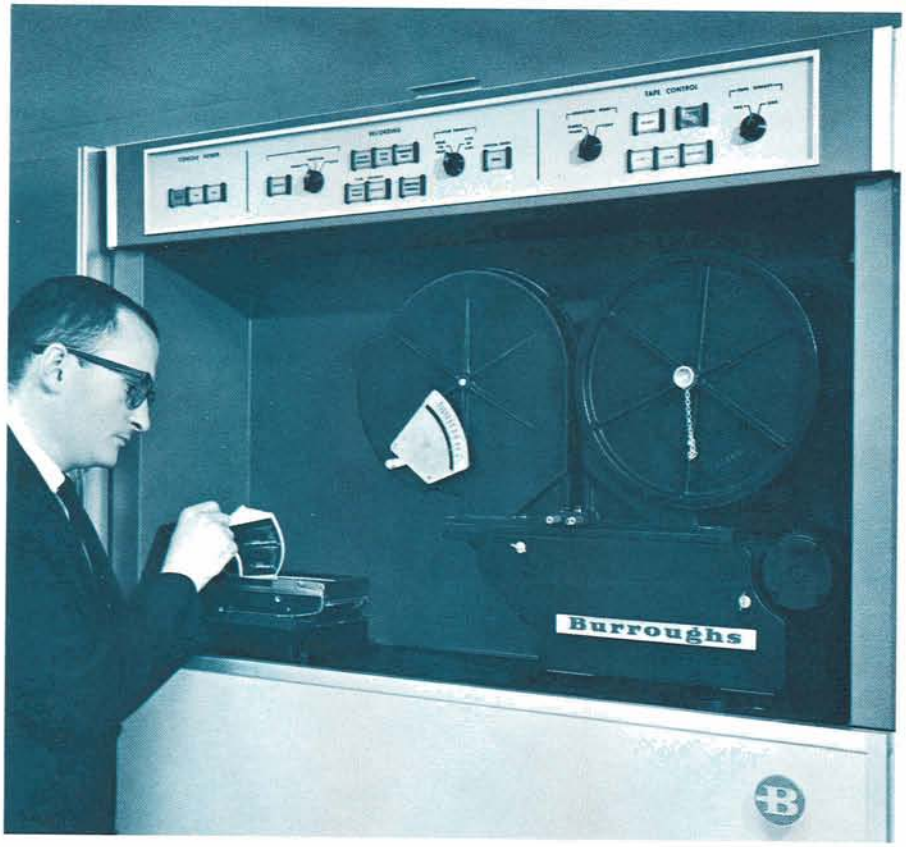
6.5 N/A

8. BODY DIM., RDG 2
   A--0.562 IN. LG
   B--0.219 IN. OD
9. PROTECTIVE COVERING DATA
   A. SILICONE COATING
   B. RESISTANT TO HUMIDITY
10. TERMINAL DATA
    A. 2
    B. WIRE LEAD TYPE

C. N/A
11.5 N/A
12. N/A
12.5 N/A
13. N/A

SPECIAL NOTATIONS

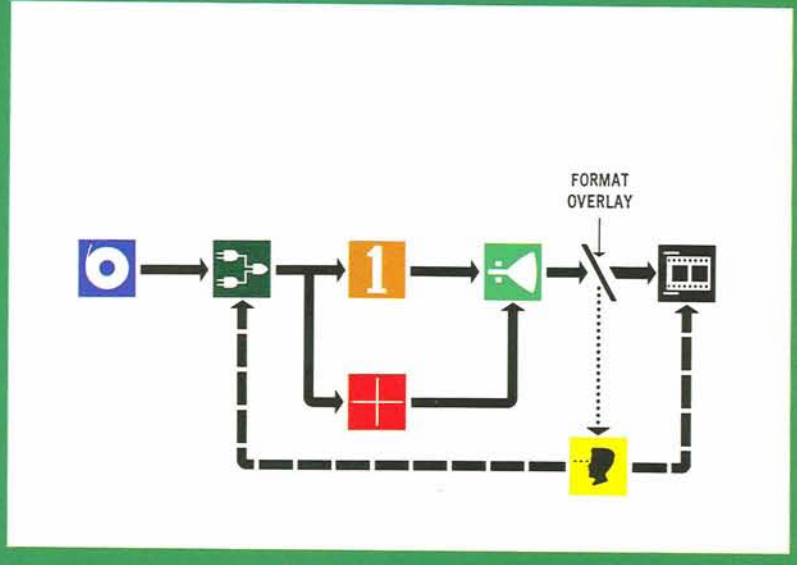
EXAMPLE OF RETRIEVED DATA



DISPLAY SPECIFICATIONS

Symbol Generation Method—Core matrix, 20 strokes at 0.4 μsec/stroke max. Slower options available.
Repertoire—64 or 128-symbol options
Symbol Size (Nominal) on CRT—0.0106″ high x 0.0084″ wide for smallest symbol; 0.0425″ high x 0.0336″ wide for largest symbol
Symbol Generation Time—8.4 μsec
Line Generation Method—Constant velocity except for lengths less than 70 mils
Line Length Ratio—1440:1
Deflection Speed Variation—45:1
Line Writing Speed—54,500 inches/per sec. max.
Viewing Area—1.7 inch x 1.7 inch on CRT
Max. Number of Symbols at One Time—10,800 in line printer format
CRT Type—5 inch tube with P-11 phosphor (special high resolution tube)—electromagnetic deflection
Line Radiance—Sufficient for exposure of Kodak type SO-266 to density of 0.5 at max. writing rate. Nominal Line width: .0008″ on tube, .00023″ on film.
Contrast—Controlled by film and processing
Symbol Writing Speed—5,000 inches/second
Frame Regeneration Rate—Once per film frame
Gross Positioning Time in Specified Symbol Format—2.6 μsec
Display Memory—Tape; real time options
Special Features—Photographic reproduction (16 mm, 35 mm options); photographic overlays; programmable automatic formatting of data; magazine film load. Graphic arts type font programmer option.

SLAVE MONITOR



MICROFILM DISPLAY SYSTEM BLOCK DIAGRAM

INQUIRY AND SUBSCRIBER DISPLAY

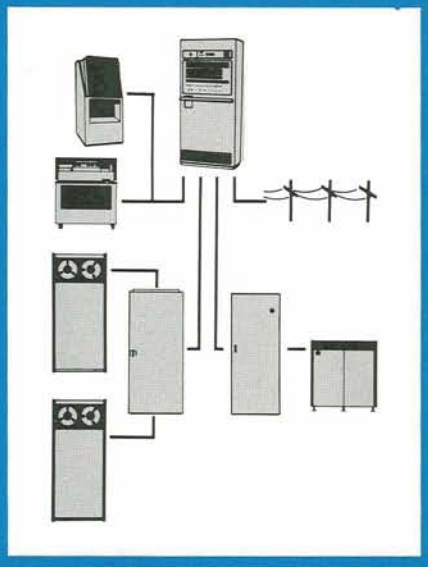
The Inquiry and Subscriber Display is a low-cost unit designed to service multiple subscribers requiring real-time access to stored information or subscriber-to-subscriber message communication. Under operator control, the display can compose, correct, transmit, and receive formatted alphanumeric text. Operator composed text is automatically assembled and organized for common carrier or direct computer communication links. Operation of the display is independent of the location or type of data source.

The display unit makes available the full capabilities of a remote data processor from a subscribers own location, in his own operational language, when required. For handling restricted data, secure codes and formatting devices are provided to maintain information integrity.

Rapid access to stored information or to mutual subscribers is essential in information retrieval systems. One Burroughs fast-access information retrieval system has been designed and manufactured to file, store, and locate reservation and flight information for a major airline. The basic units of the system are a D82 data processor and a fast access disk file memory. The D82 processor contains parallel input/output channels which interface with the disk file, standard peripheral equipment, and common carrier communications terminals via a processor-contained communication scan unit. Subscribers with appropriate inquiry units access the system via ordinary communication links.

Features of the system allow a symbol search of a 64-word data block in 0.26 millisecond. Basic storage in the disk file is 9.6 million characters. Additional disks are added for increased storage. All common carrier data rates, including 2400 bits/second are accommodated. Each input/output channel of the processor operates independently of the processor, as does the scan unit.

Burroughs displays for this type of system contain a refresh memory, symbol generator, timing and control, keyboard logic, and data phone buffer (1200 or 2400 baud), as an integral part of the display. Only interconnection to standard communication terminals is required.



INFORMATION RETRIEVAL SYSTEM

INQUIRY AND SUBSCRIBER DISPLAYS

DISPLAY SPECIFICATIONS (Using 525 line TV system)

Symbol Generation Method—Data Converter (word format to TV scan)

Repertoire—64 symbols

Symbol Size (Normal)—height = 9/480 times screen height; width = 7/9 of symbol height

Line Generation Method—Segment Symbol Juxtaposition

Line Length Ratio—45:1

Deflection Speed Variation—Constant speed

Writing Speed—19,200 times the scan line length in inches equals the writing speed in inches/second (Line length depends on CRT size)

Viewing Area—Depends on CRT size selected

Maximum No. of Symbols at One Time—36 characters/line x 20 lines/frame = 720 characters/frame

CRT Type—Any good quality TV CRT, using standard TV flyback bootstrap high voltage and horizontal deflection

Line Brightness—Greater than 50 foot-lamberts

Frame Regeneration Rate—30 frames/second (2 fields/frame)

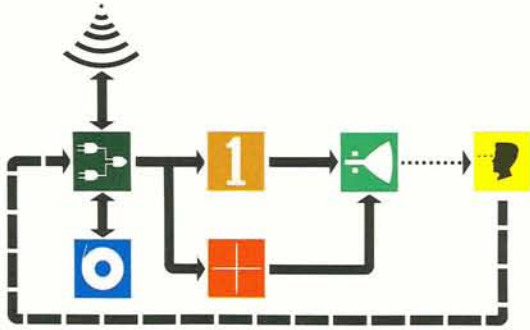
Display Regeneration Memory—Core; 12 bits x 360 words

Special Features—Remote location; compatible with standard TV monitors

THIS IS A BURROUGHS LOW COST DISPLAY.
IT IS COMPATIBLE WITH STANDARD COM-
MERCIAL TELEVISION.
A CORE ROPE IS UTILIZED FOR SYMBOL
GENERATION.
ALPHA-NUMERIC OR SPECIAL SYMBOL DATA
IS STORED IN A COINCIDENT CURRENT
FERRITE CORE MEMORY [ASC II CODE]
MICROCIRCUITS ARE UTILIZED TO PER-
FORM ALL LOGICAL OPERATIONS.
DATA RATE IS 15.75 KC OPERATING
TEMPERATURE RANGE FROM 15 DEG C. TO
55 DEG C.

THE QUICK BROWN FOX
JUMPED OVER THE LAZY DOG'S BACK. 123
4567890 , ABCDEFGHIJKLMNOPQRSTUVWXYZ
!"#$&',+-*% ?=[]: /\<>()@;$#&2X+4X=6X
(/<". @."><)THIS DISPLAY HAS 36 CHAR-
ACTERS PER LINE & 20 LINES OF TEXT ←

CRT PRESENTATION OF 720 SYMBOLS ON STANDARD TV DISPLAY



INQUIRY & SUBSCRIBER DISPLAY SYSTEM BLOCK DIAGRAM

DISPLAY INDICATORS

No discussion of Burroughs Corporation's display capabilities would be complete without mention of NIXIE® Indicator tubes. The tubes are all-electronic, gas filled, cold cathode indicators that display numerals, letters, or special symbols. These devices are the industry's most widely used electronic readout and are ideal for converting electro-mechanical or electronic signals directly to readable characters.

NIXIE tube assemblies and display systems fall into two distinct categories: numeric and alphanumeric. The numeric types are generally used in digital voltmeters, frequency counters, and other devices where digital information of a decimal nature must be displayed. The alphanumeric types are used in schedule boards, arrival-departure displays, computer read-out panels, stock-quotation systems, and in other applications where a minimum of 36 characters (ten numbers and 26 letters) are required.

A series of driver circuits are available to operate the tubes from a variety of inputs. These drivers are modular in design and allow the assembly of custom systems with standard production packages. Included in the series are signal amplifiers, code converters, and electronic memory circuits.

NUMERICAL TUBES IN VARIOUS SIZES


B-7094 Jumbo


B-8091 Large

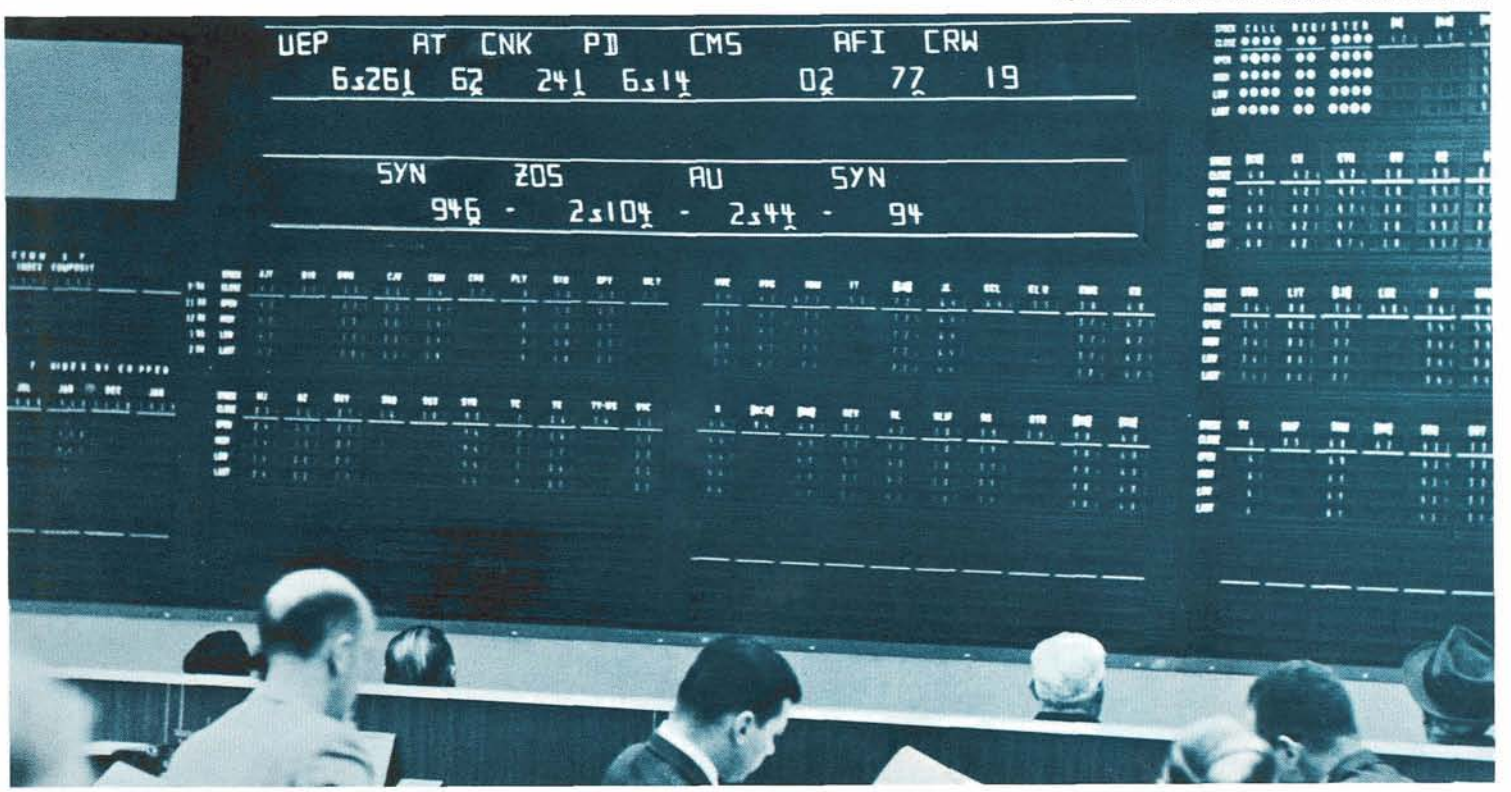

8423 Super


8421 Standard


8422 Standard


7977 Miniature

Alpha Numberic NIXIE Tube Displays of Stock Information



The intent of this brochure has been to provide some insight into the variety and quality of the Burroughs Corporation's work in the important area of man-machine communications. We invite your inquiry with regard to your specific display system requirements.

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