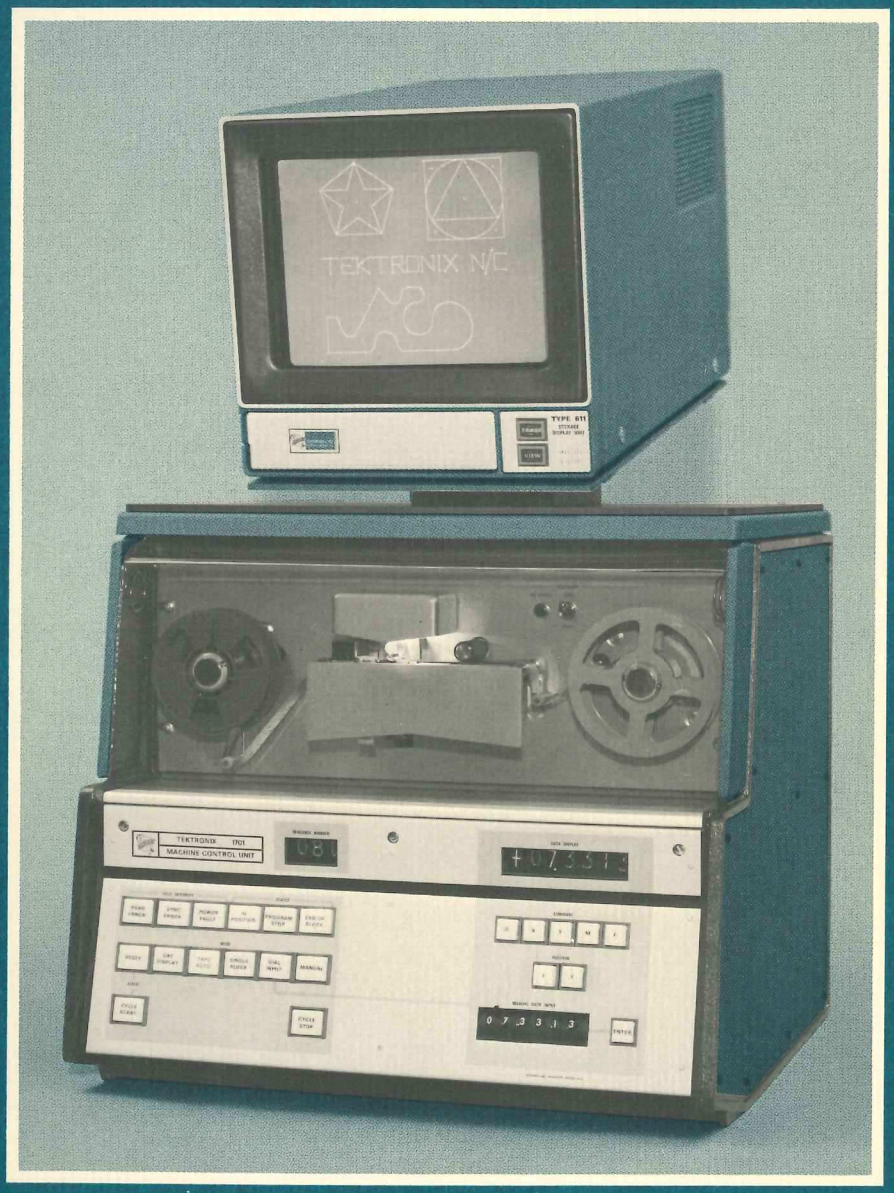
Type 611

TEKTRONIX®

CONTOURING/POSITIONING CONTROLS with CRT DISPLAY



TWO-AXIS
1701

for:
Milling Machines
Lathes
2-Axis Point-to-Point Application

THREE-AXIS
1702

for:
Machining Centers
Milling Machines
Boring Machines
3-Axis Point-to-Point Application

TEKTRONIX, INC., P.O. Box 500, BEAVERTON, OREGON 97005

Tektronix, the world's leading oscilloscope manufacturer, brings its expertise in circuitry, functional design, maintainability, and reliability to the numerical control user. The new 1701 and 1702 Machine Control Units utilize in their highly optimized design, MSI modules for reliability, multi-layer "functional" circuit boards for maintainability, and a self-explanatory control panel designed for industrial applications.

Unique to the 1701 and 1702 is the ability to interface the Type 611 Storage Display Unit for tool centerline path observation. The CRT will display the path of the tool before actual machining takes place. When checking out a part program tape, the speed at which the path is displayed is only limited by the speed of the tape reader. Using reader speed instead of machine speed for both programmer and operator, the time required (wasted money) for tape checkout is minimized.

Closed loop, automatic feedback systems, the 1701 and 1702 rely on digital incremental encoders for feedback from the machine. The absolute dimensioning of the point-to-point control is combined with some of the interpolation techniques of the contouring control offering controls which are adaptable to positioning or continuous path applications.

CONTROL FEATURES

.0001 INCH RESOLUTION—A system resolution of up to .0001 inch, based on a total maximum travel of 99.9999 inches.

DIRECT FEEDRATE PROGRAMMING—Direct programmable feedrates from 1 to 240 inches per minute for contouring applications, and 1000 ipm for positioning applications.

FULL FLOATING ZERO—The zero reference point can be manually established at any position over the full travel of the machine tool.

LEADING OR TRAILING ZERO FORMAT—X, Y, and Z dimension programming is available in leading (ex. x00125) or trailing (ex. x12500) zero formats.

DIAL INPUT—The ability to insert COMMAND or POSITION data via six front panel switches to manually program the 1701 and 1702.

COMMAND values include:
- X - axis
- Y - axis
- Z - axis (1702 only)
- F - feedrate
- M - functions (1701 only)
- G - functions

POSITION values include:
- X - axis
- Y - axis
- Z - axis (1702 only)

MISCELLANEOUS (M) FUNCTIONS—M00 thru M99 (Dial input with 1701 only)

Pre-Assigned Auxiliary Functions
- M00 Program Stop
- M02 End of Program
- M03 Spindle on (CW)
- M05 Spindle OFF
- M08 Coolant ON
- M09 Coolant OFF
- M30 End of Tape
- M31 Z Cycle inhibit (1701 only)

PREPARATORY (G) FUNCTIONS
- G00 Positioning Mode
- G01 Contouring Mode

COMMAND AND POSITION DISPLAY—Switch selectable Digital Readout of COMMAND or POSITION information.

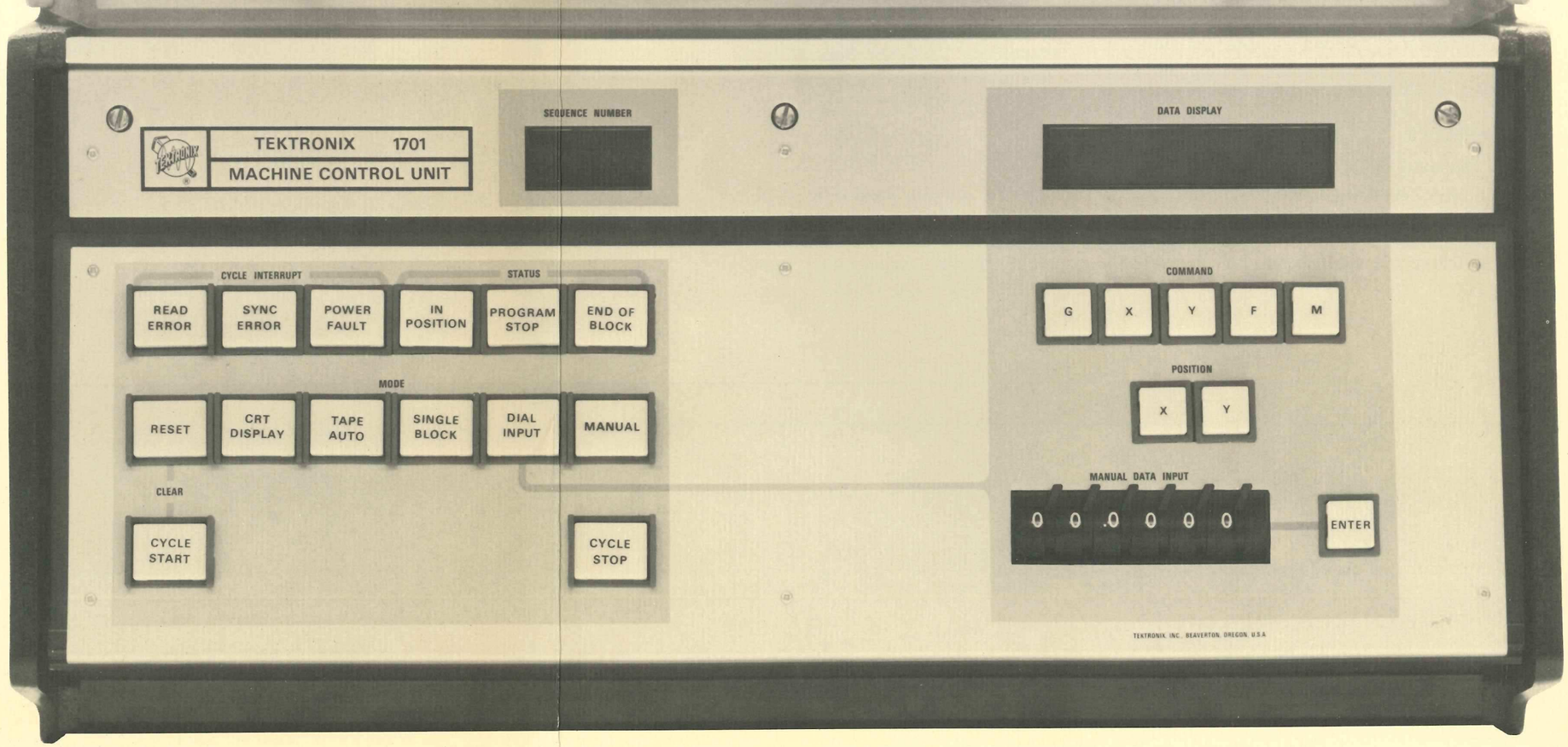
SEQUENCE NUMBER DISPLAY—Digital readout of the program block sequence number.

PHOTO ELECTRIC TAPE READER—A 300 character/second tape reader with rewind and tape spoolers is standard equipment.

FUNCTIONAL LAYOUT—A functional layout rather than a modular layout assists in ease and speed of maintenance, a necessity in production environments.

NO CALIBRATION ADJUSTMENT—The control has no calibration adjustments except for the adjustments in the servo preamp which aid in interfacing the control unit to servo amplifiers on the machine tool.

MSI and TTL—The control uses MSI modules and the popular TTL logic.



SYSTEMS SUPPORT

SOFTWARE

Programming for most point-to-point and simple contouring applications is usually done manually with a programming tablet and flexowriter. To make part programming simpler, computer assist programs have been written. Postprocessors are available for use on General Electric Timeshare (REMAPT-NCPPL$) and Digital Equipment Corporation PDP-8 (Quick point 8) with 1701 only. An APT postprocessor, written for the IBM 360 but adaptable to UNIVAC 1108 and CDC 6600, is available for use with both the 1701 and 1702. An ADAPT postprocessor, written for IBM 360 OS and DOS, is available for use with the 1701 and limited 1702 applications.

MANUALS

One copy each of the Instruction Manual and Operating Manual is supplied with each control system. These manuals supply sufficient instructions for operating and maintaining the control systems.

TRAINING

Free programming and maintenance training classes are available to all users of Tektronix 1701. Our plant facilities include space devoted exclusively to training purposes.

WARRANTY

A one year parts warranty is furnished.

SERVICE

A worldwide service organization of permanently located, highly trained, and experienced Customer Service Technicians provide fast, high-quality service whenever necessary.

OPTIONS

Several optional features are available including: Metric operation, USASCII code, S functions, T functions, G80 series, circular interpolation, feedrate override, and a jog switch.