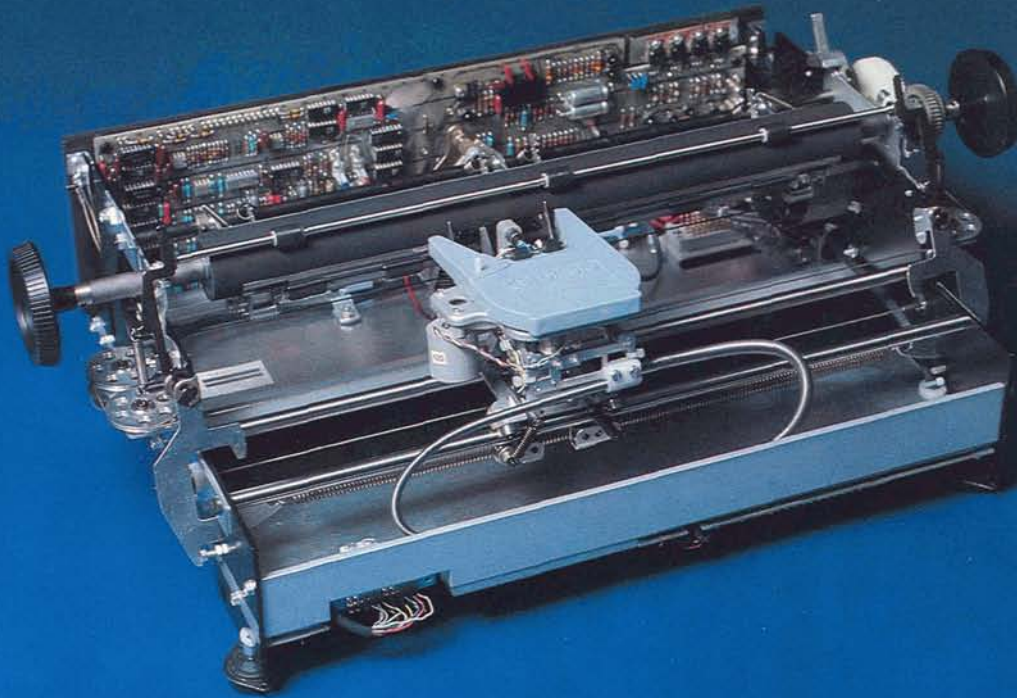MAY 2 8 1974

Diablo
HyType I

Diablo System's Model 1200 HyType I Serial Printer

Diablo HyType I Serial Printer—faster, quieter, more reliable. Unique electronic control techniques that eliminate 80% of the moving parts found in conventional printers give the Diablo HyType I the most reliable and highest print quality characteristics available today.

As a printer, the HyType offers the key features needed for such applications as small office systems, communication terminals, and computer output devices.

The low-cost HyType I prints an original and five clean, clear copies, using standard carbon forms.

The Diablo HyType I prints 30 characters per second up to 132 columns per line, 48 lines per vertical inch. The HyType I character wheel termed a ''Daisy,'' is a simple plastic disk with 96 ''petals,'' each carrying one of the print characters. The operator may snap in a different character wheel to change type styles or fonts, including foreign language. Ribbon, fabric or one-time carbon, one or two-color, is contained in a snap-in cartridge.

High reliability in heavy-duty operation is an absolute requirement in today's low-cost computer and communications systems. In HyType I, high reliability is achieved by the use of field-proven servo techniques for fast, accurate positioning of the

HyType I

Diablo HyType I

INTERFACE

Definition of the standard input and output interface lines, as shown below, are given in the following paragraphs. Signal polarity: "O" volts nominal for "true" and "+5" volts DC nominal for "false."

INPUT LINES

Select Printer Line
A signal which enables the input and output lines of the interface. All lines, with the exception of Select Ready Signal, are inactive until this line is true.

Select Ready Signal Line
A signal which enables just the three output status lines: Character Ready, Carriage Ready and Paper Feed Ready.

Data Lines
Eleven lines which contain binary coded information representing an ASCII character, a carriage movement command or a paper feed command.

When representing an ASCII character, only the low order seven lines are used, the remaining lines should contain +5 volts.

When representing a carriage movement command, the ten low order bits designate the distance the carriage is to be moved in multiples of 1/60 of an inch, value of 6 for one character at 10 characters per inch. The high order bit determines direction of a travel. A "zero" designating carriage movement to the right, a "one" designating movement to the left.

When representing a paper feed command, the ten low order bits designate the number of vertical positions, in multiples of 1/48 of an inch, that the paper is to be moved. The higher order bit determines the direction of travel, a "zero" to advance the paper upward, a "one" to move the paper downward.

Character Strobe
A signal used to sample the ASCII character code.

Carriage Motion Strobe
A signal used to sample the 11-bit carriage movement command.

Paper Feed Strobe
A signal used to sample the 11-bit paper feed command.

Restore Printer
A signal which causes the printer to perform a restore sequence. This consists of positioning the carriage at the leftmost print column, resynchronizing the print wheel and resetting all the registers and flip flops in the printer logic. This signal has priority over and is independent of all other interface commands.

Ribbon Action
A signal used to raise the ribbon cartridge to its upper position; if this signal is absent, the ribbon will remain in its lower position. This line is used for a two-color ribbon.

OUTPUT LINES

MAY 2 8 1974

Printer Ready
A line indicating that the printer is properly supplied with power.

Character Ready
A line indicating that the printer is ready to accept a new character command.

Carriage Ready
A line indicating that the printer is ready to accept a new carriage movement command.
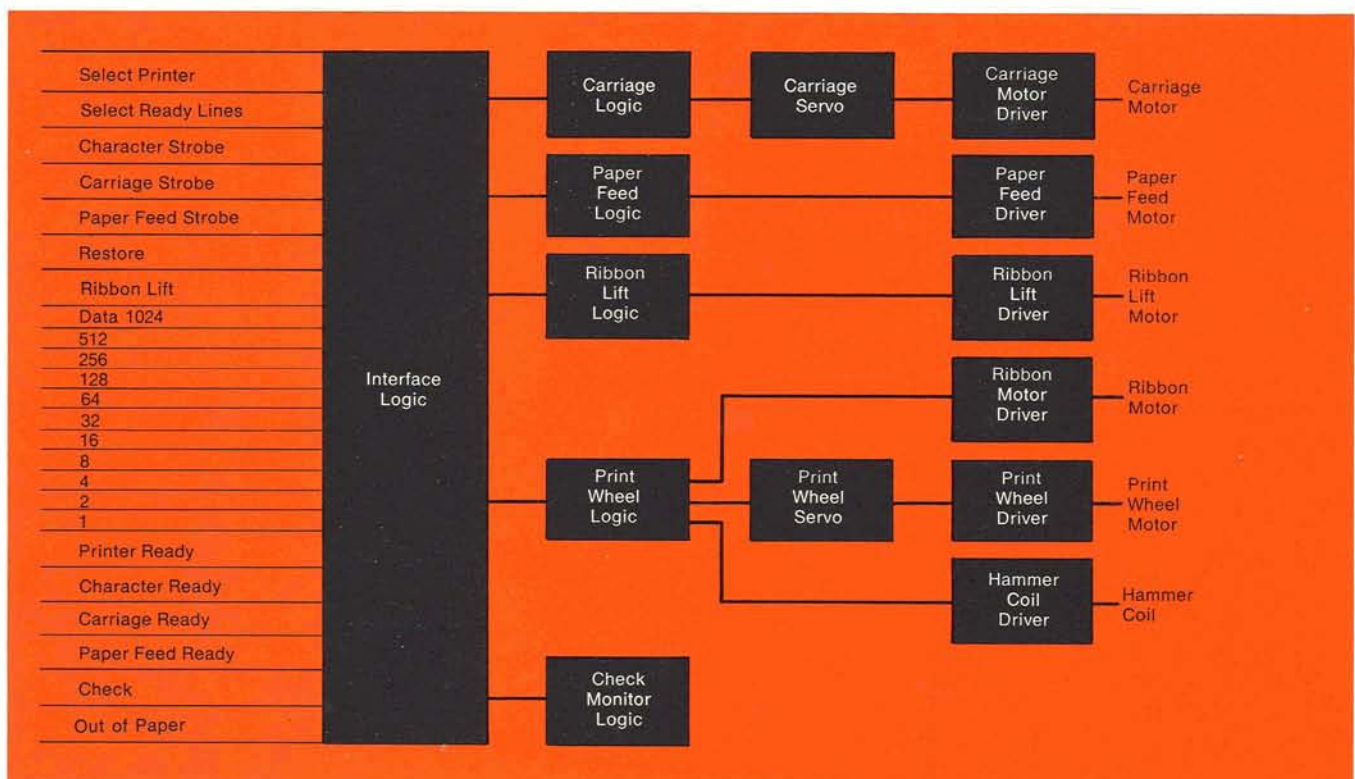
Paper Feed Ready
A line indicating that the printer is ready to accept a new paper feed command.

Check
A line which indicates that due to a machine malfunction, a previously received command has not been successfully executed. When a check condition is detected, the Character Ready, Carriage Ready, and Paper Feed Ready signal lines will be false. The only command that will be accepted by the selected printer is "Restore Printer," which will clear the check condition. The malfunction could prohibit this clear.

Paper Out
A line which could indicate that the printer is out of paper. This condition is monitored by a micro switch installed in the cover of the printer, if no switch is installed, this line will always indicate out of paper.

Performance Specifications

Print Speed	Print speed is 30 characters per second on average text
Character Set	96 Characters
Print Line	132 columns
Forms Width	15 inches maximum
Carriage Return Time	400 msecs maximum for 132 columns
Tabulation	Right and left, direct to column address
Tabulation Speed	400 msecs maximum for 132 columns
Column Spacing	60 positions per inch nominal
Paper Feed	Bi-directional
Paper Feed Spacing	48 positions per inch nominal
Paper Feed Speed	4 inches per second plus 50 msecs settling delay

Power Requirements

Voltages	+5 volts DC 4 amps
	+15 volts DC 9 amps peak
	−15 volts DC 9 amps peak
Wattage	100 watts typical average

Basic Configuration

The standard configuration includes mechanisms and circuitry to produce all print, control and status functions from a TTL or DTL compatible controller.

Diablo Systems, Incorporated
Hayward, California 94545
A Xerox Company

Physical Dimensions

Height	8$^1/_2$ inches
Width	22$^1/_2$ inches
Depth	13$^1/_2$ inches
Weight	30 pounds

Interface Specification See Interface Section

Environmental

Operating 50° F to 95° F
Storage −40° F to 170° F

Functional Elements Include:

Logic and control circuits
Print carriage positioning control and drive circuits
Paper feed positioning control and drive circuits
Ribbon feed positioning control and drive circuits
Print wheel positioning control and drive circuits
Print wheel (absolute) address register and arithmetic logic
Hammer fire drive circuits
Ribbon cartridge
Friction platen

Options

Power supply
Pin feed and split platens
Operator interchangeable character wheel
Auxiliary tractor form feed
Multi-strike carbon ribbon cartridge
Two-color ribbon cartridge
Covers, typewriter or receive only

Easily changed character wheel (Daisy) provides 96 characters and may be quickly replaced to meet specific character or font style requirements.

Snap-in cloth ribbon cartridge provides quick change with no finger smudges. Interchangeable multi-strike or twin color carbon cartridge available as options.

carriage (horizontal tabbing) and for character selection. These servo systems, including the unique non-contacting rotary transducer, have proven to be outstanding performers in Diablo's Series 30 and 40 Disk Drives.

Horizontal positioning of the carriage, being entirely servo controlled, is quiet, vibration free and extremely fast. Under program control the print carriage may be moved at high speed directly to any columnar position. No carriage return and no mechanical stops are used. Because of the inherent accuracy of the transducer, which provides both velocity and position feedback to the servo system, the carriage can be positioned in increments as small as 1/60 inch.

Character selection is accomplished by a similar servo. The character wheel is moved to the proper position via the shortest path wholly under the control of the HyType I electronics. Printing occurs only when the selected character is in position and all motion has stopped.

Mean time between failures for the HyType I is specified at 500 operating hours, compared to 50 to 200 hours for existing printers of this class.
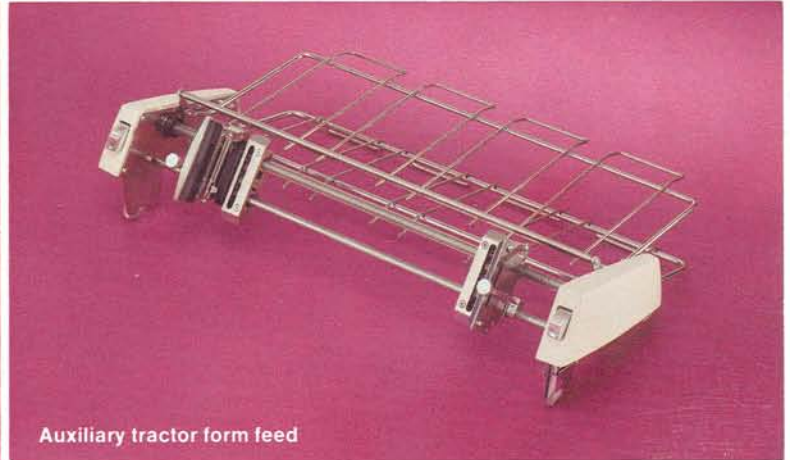
Receive only cover

Pin feed platen

Typewriter cover

Auxiliary tractor form feed