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**CONTROL DATA<sup>®</sup>  
SYSTEM 17**

**CUSTOMER:**

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**SITE PLANNING KIT**







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# INTRODUCTION

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## INTRODUCTION TO THE SITE PLANNING KIT

This publication provides a means of obtaining all pertinent information required to configure a CONTROL DATA® SYSTEM 17 Series Small Computer System.

The information retrieved by this document enables CDC to assemble and ship all items necessary to install SYSTEM 17 systems with a minimum of time and of inconvenience to the customer.

This document also conveys the physical, electrical, and environmental specifications and requirements associated with site preparation.

## INSTRUCTIONS

The Control Data installation planning team will obtain all information necessary to complete summaries 5, 6, and 7.6 of this kit.

They will ensure that the contents of sections 8 and 9 of this kit are transmitted to the customer and/or his consultant to inform them of the system's requirements. The transmittal of sections 8 and 9 shall be made early enough to enable completion and site readiness prior to installation of the system(s) at his site(s).

The completed summaries 5, 6, and 7.6 must be returned to:

CONTROL DATA CORPORATION

\_\_\_\_\_

\_\_\_\_\_

Dept. : \_\_\_\_\_

ATTN: \_\_\_\_\_ Ext. \_\_\_\_\_

The completed summaries 5, 6, and 7.6 must be returned to:

CONTROL DATA CORPORATION

\_\_\_\_\_ Division

\_\_\_\_\_  
\_\_\_\_\_ ZIP \_\_\_\_\_ U.S.A.

Dept: \_\_\_\_\_

ATTN: \_\_\_\_\_ Ext. \_\_\_\_\_

**NOTE:** Be sure all questions in this kit are answered completely and correctly to avoid any possible delay in shipment or installation.

# SITE INFORMATION QUESTIONNAIRE

2

## SITE DATA

CUSTOMER: \_\_\_\_\_

ADDRESS: \_\_\_\_\_ PHONE: \_\_\_\_\_

CUSTOMER CONTACT: \_\_\_\_\_ TITLE: \_\_\_\_\_

CORPORATE FILE NO: \_\_\_\_\_ CORPORATE FILE REF: \_\_\_\_\_

SHIP TO ADDRESS: \_\_\_\_\_

CITY: \_\_\_\_\_ STATE: \_\_\_\_\_ ZIP: \_\_\_\_\_

ESTIMATED DELIVERY DATE: \_\_\_\_\_

PREFERRED ARRIVAL TIME: \_\_\_\_\_

CONTACT/FIRM: \_\_\_\_\_ PHONE: \_\_\_\_\_

ACCOUNT SALESMAN: \_\_\_\_\_

LOCATION: \_\_\_\_\_ PHONE: \_\_\_\_\_

COMPUTER SITE ENGINEER (if contracted): \_\_\_\_\_

CUSTOMER ENGINEERING SUPPORT BRANCH MANAGER: \_\_\_\_\_

SYSTEMS MANAGER: \_\_\_\_\_

## GENERAL SHIPPING AND DELIVERY DATA

**A** The building is located (on the corner) (in the middle) of the block on a (one-way) (two-way) street. If on a one-way street, the building is on the (right hand) (left hand) side. It (is) (is not) necessary for the delivering vehicle to cross a (curb) (sidewalk) to reach the delivery point. A fire lane (will) (will not) be blocked.

**B** The vehicle will be unloaded from the (side) (rear) door to the (ground) (sidewalk) ( \_\_\_\_\_ in./cm high dock) ( \_\_\_\_\_ in./cm to \_\_\_\_\_ in./cm high adjustable dock). If equipment is unloaded to the ground, the surface is (cement) (blacktop) (other \_\_\_\_\_) and protective covering (will) (will not) be required.

**C** The distance from the unloading point to the building entrance is \_\_\_\_\_ ft./m. The following restrictions will prevent or hinder equipment movement from the unloading point to the building entrance: \_\_\_\_\_  
\_\_\_\_\_

**D** A security clearance (is) (is not) required to gain access to the (building) (computer room). The type required is (Confidential) (Secret) (Top Secret) (other \_\_\_\_\_).

Security Officer: \_\_\_\_\_ Phone: ( \_\_\_\_\_ ) \_\_\_\_\_

Address: \_\_\_\_\_

**E** Rigging (is) (is not) required. NOTE: If rigging is required, attach a sketch with comments.

**F** There (are) (are no) restrictive local ordinances or union regulations. Type, if any: \_\_\_\_\_

## **BUILDING OBSTRUCTIONS**

### **ENTRANCE**

**A** The computer room is located (on the \_\_\_\_\_ floor) (in the basement) of Building No. \_\_\_\_\_, Room No. \_\_\_\_\_.

**B** There (are) (are no) (stairs) (ramps) at the building entrance. The dimensions of the (stairs) (ramp) are \_\_\_\_\_ ft./m long, \_\_\_\_\_ ft./m wide, and \_\_\_\_\_ ft./m high. Ramps have an incline of \_\_\_\_\_ degrees. The vehicle (can) (cannot) be parked close

enough to the stairs so the equipment can be ramped directly to the top landing. A winch (will) (will not) be required. If required, there (are) (are no) facilities for securing the winch to the building structure. Further complications, such as turns, railings, etc., are as follows: \_\_\_\_\_

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**C** The building (does) (does not) have automatic doors of the type that operate by a person's weight. If it does, the load capacity is \_\_\_\_\_ lbs./kg.

**D** If the doors through which the equipment must pass are less than 48 x 84 in. (122 x 224 cm), list the dimensions and any additional problems, such as revolving doors, thresholds, gratings, etc.; \_\_\_\_\_

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## INTERIOR

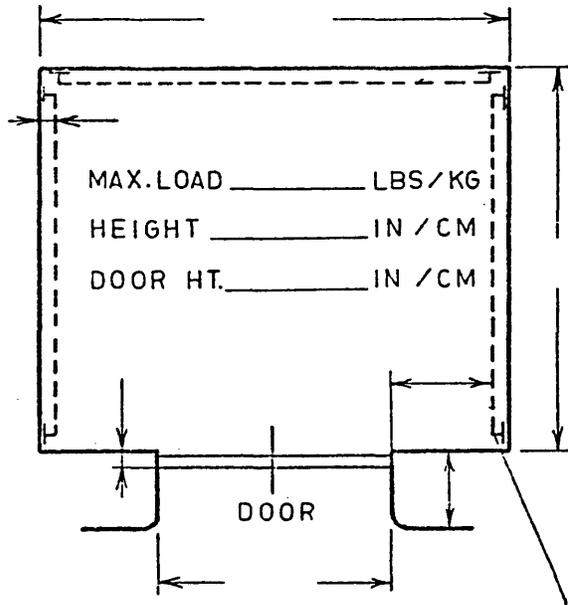
**A** The distance from the building entrance to the computer room is \_\_\_\_\_ ft./m.

**B** There (are) (are no) narrow passageways or turns along the delivery route that will restrict movement of equipment but allow passage. NOTE: If there are any required turns, attach a sketch with dimensions.

**C** There (are) (are no) (stairs) (ramps) along the route to the computer room. The dimensions of the (stairs) (ramps) are \_\_\_\_\_ ft./m long, \_\_\_\_\_ ft./m wide, and \_\_\_\_\_ ft./m high. A winch (will) (will not) be required. If required, there (are) (are not) facilities for securing the winch to the building structure. Further complications such as turns, railings, small landings, etc., are: \_\_\_\_\_

---

**D** Delivery (does) (does not) require the use of an elevator. If required, complete the elevator plan view to the right. The equipment (will) (will not) have to be tipped on end. Special crating (will) (will not) be required. If the elevator does not have sufficient size or capacity, the equipment (can) (cannot) be rigged up the elevator shaft. Give details below: \_\_\_\_\_



Railing (is)(is not) removable

The elevator will be available between \_\_\_\_\_ (a. m.) (p. m.) and \_\_\_\_\_ (a. m.) (p. m.) and (will) (will not) be dedicated to the equipment delivery.

**E** The dimension of the smallest door through which the equipment must be moved is \_\_\_\_\_ in. /cm wide and \_\_\_\_\_ in. /cm high. The door or door frame (will) (will not) have to be removed. The dimensions after the removal of the (door) (door frame) are \_\_\_\_\_ in. /cm wide and \_\_\_\_\_ in. /cm high.

**F** A ramp (will) (will not) be used to move the equipment on to the computer floor. It is a (permanent ramp) (temporary ramp supplied by the customer) (temporary ramp supplied by the mover). The ramp inclination is a \_\_\_\_\_ degree angle. A raised floor (does) (does not) exist. A portion of the raised floor (will) (will not) have to be removed to get the equipment into the room. A winch (will) (will not) be required. If required, there (are) (are no) facilities for securing the winch to the building structure or floor. A protective covering (will) (will not) be required for the floor. Further problems with delivery are: \_\_\_\_\_

**G** Is a power-tailgate truck required? (Yes) (No)

## SYSTEM GEOGRAPHICAL ENVIRONMENT

**A** The system will be operated at \_\_\_\_\_ ft./m elevation.

**B** Temperature range normally falls between \_\_\_\_\_ °F/°C and \_\_\_\_\_ °F/°C with humidity in the range of \_\_\_\_\_ to \_\_\_\_\_ percent.

**C** If the system will be installed in the vicinity of power generating stations and/or radio transmitting stations, give the approximate distance: \_\_\_\_\_ miles/yards/m/km.

**D** Is the area normally subjected to severe electrical storms? (Yes) (No)

**E** Will the system be located near a metropolitan area? (Yes) (No)

If no, what is the approximate distance to the system site? \_\_\_\_\_ miles/km.

What is the main mode of travel? (Private auto/bus/train/truck/other \_\_\_\_\_).

Is lodging available at the site? (Yes) (No)

Would the route to the site be closed during inclement weather? (Yes) (No)

## SITE INSTALLATION

### SCHEDULE OF INSTALLATION

Delivery and installation is dependent on the availability of hardware, Control Data's installation crew, and the customer's site readiness. Confirmation of the delivery date should be obtained from CDC's systems installation plan (see SIP Procedure and form \_\_\_\_\_ prior to scheduling or the pre-installation conference).

## AVAILABILITY OF SYSTEMS ROOM

Shift: From \_\_\_\_\_ To \_\_\_\_\_ Date \_\_\_\_\_  
From \_\_\_\_\_ To \_\_\_\_\_ Date \_\_\_\_\_

## SPECIAL NOTES

Indicate the hours available for systems installation.

## AC POWER AVAILABLE

The site (will be) (is) equipped with the following ac power:

- |  |   |                            |
|--|---|----------------------------|
| <input type="checkbox"/> 208/120 vac 3/1 phase | } | 60 Hz _____ amps available |
| <input type="checkbox"/> 120 vac 1 phase       |   |                            |
| <input type="checkbox"/> 230/115 vac 2/1 phase |   |                            |
| <input type="checkbox"/> 380/220 vac 3/1 phase | } | 50 Hz _____ amps available |
| <input type="checkbox"/> 220 vac 1 phase       |   |                            |
| <input type="checkbox"/> Other. Specify _____  |   |                            |

# GENERAL CONFIGURATION

3

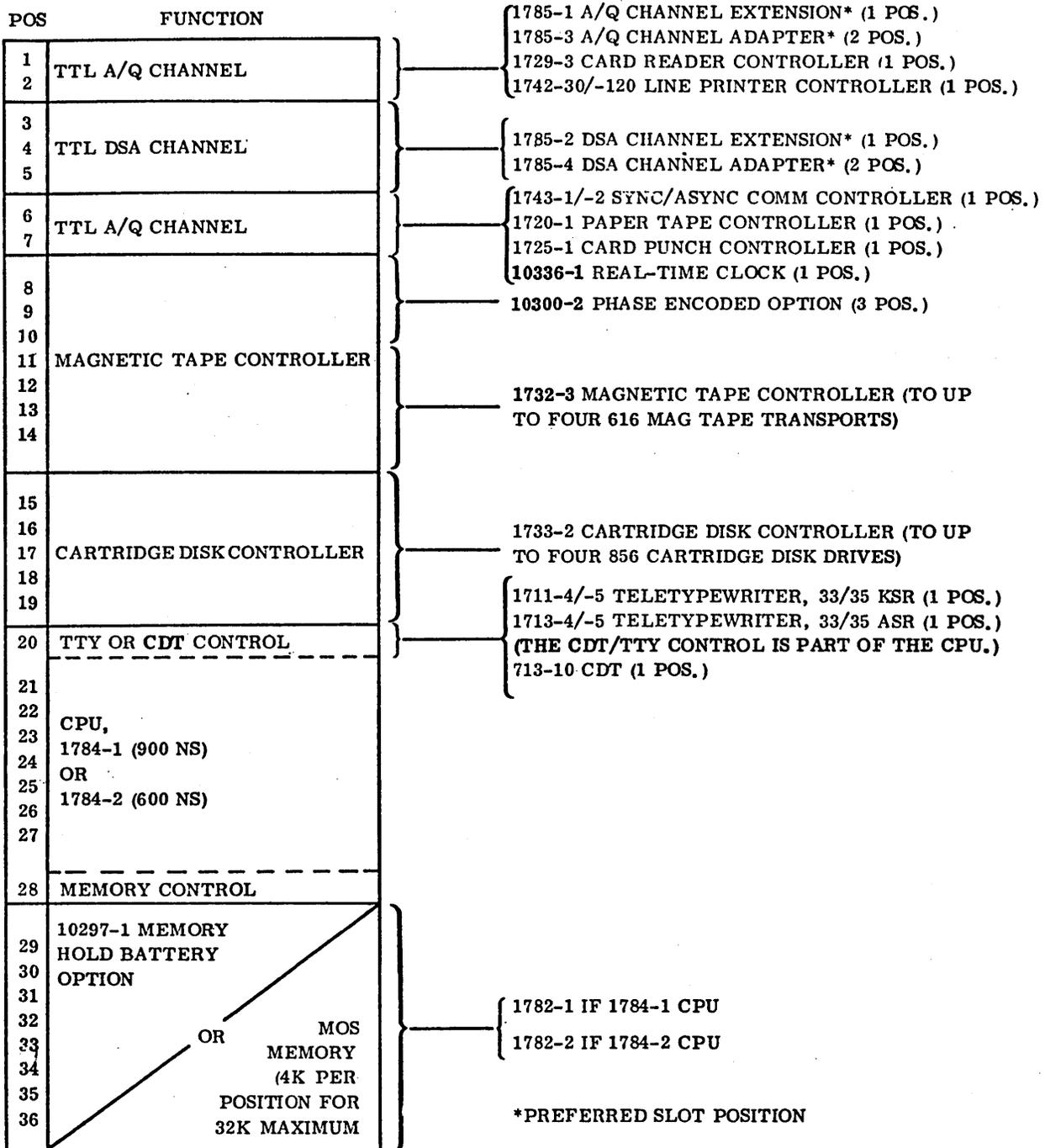
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## PRODUCT/EQUIPMENT CONFIGURATION

Sketch the proposed system layout below.

# CENTRAL PROCESSOR

The illustration below indicates the noninterchangeable options as well as the development of the A/Q-DSA positions for interchangeable options with the CPU.



- NOTES: 1. ANY A/Q POSITION CAN ACCEPT ANY A/Q-TYPE INTERFACE.  
 2. ANY DSA POSITION CAN ACCEPT ANY DSA-TYPE INTERFACE.  
 3. THE 10297-1 OPTION PROVIDES MEMORY RETENTION IN CASE OF POWER FAILURE.

# EXPANSION ENCLOSURE

The illustration below indicates the noninterchangeable options as well as the development of the A/Q-DSA positions for interchangeable options within the expansion enclosure.

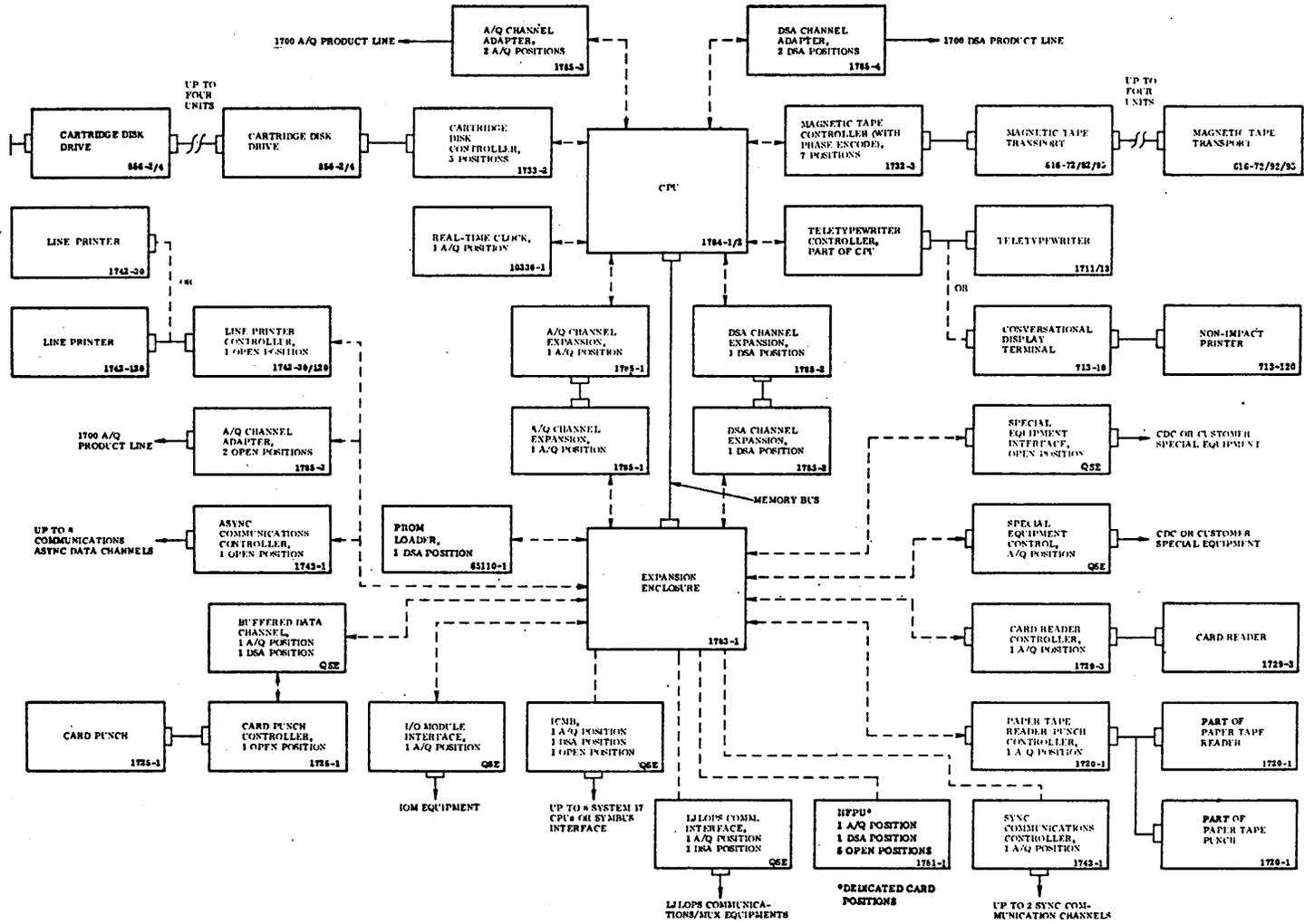
POS	FUNCTION	
1	TTL A/Q CHANNEL	} 1785-1 CHANNEL EXPANSION* (1 POS.)
2	TTL DSA CHANNEL	
3	TTL A/Q CHANNEL	} 1785-2 CHANNEL EXPANSION* (1 POS.)
4		
5		
6	TTL DSA CHANNEL	} 1785-4 DSA CHANNEL ADAPTER (2 POS.)
7	OPEN	
8		
9		
10		
11	TTL A/Q CHANNEL	} 1785-3 A/Q CHANNEL ADAPTER (2 POS.) 1729-3 CARD READER CONTROLLER (1 POS.) 1742-30/-120 LINE PRINTER CTLR (1 POS.) 1743-1/-2 SYNC/ASYNC COMM CTLR (1 POS.) 1720-1 PAPER TAPE CONTROLLER (1 POS.) 1725-1 CARD PUNCH CONTROLLER (1 POS.) 10336-1 REAL-TIME CLOCK (1 POS.) 65110-1 PROM LOADER (1 POS.)
12		
13		
14	TTL DSA CHANNEL	} 1785-4 DSA CHANNEL ADAPTER (2 POS.)
15	OPEN	
16		
17		
18	TTL A/Q CHANNEL	} 15 THROUGH 23 ARE THE NORMAL POSITION ASSIGNMENTS FOR THE 1781-1 HARDWARE FLOATING-POINT UNIT
19		
20		
21	TTL DSA CHANNEL	}
22		
23	OPEN	}
24		
25	RESTRICTED	}
26		
27	MEMORY EXPANSION CONTROL	} 1786-1 MEMORY EXPANSION MODULE (2 POS.)
28		
29	10297-1 MEMORY HOLD BATTERY OPTION  OR  MOS (4K PER POSITION FOR 52K MAXIMUM)	} 1782-1 IF 1784-1 CPU 1782-2 IF 1784-2 CPU
30		
31		
32		
33		
34		
35		
36		

\*PREFERRED SLOT ASSIGNMENT

- NOTES: 1. THE 1785-3/-4 MAY BE INSERTED INTO ANY OTHER AVAILABLE A/Q OR DSA CHANNEL POSITIONS.  
2. THE 10297-1 OPTION PROVIDES MEMORY RETENTION IN CASE OF POWER FAILURE.

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SYSTEM CONFIGURATION



NOTES: 1. - - - THESE DEVICES RESIDE WITHIN THE CPU OR EXPANSION ENCLOSURE ON THE CPU INTERNAL A/Q-DSA BUS.  
 2. THESE DEVICES RESIDE IN EXTERIOR HOUSING.

# PHYSICAL CONFIGURATION



96768500 A

## GENERAL CONFIGURATION

SYSTEM 17 equipment and cable requirements are broken up into the respective subsystems within this kit.

To figure the cabling required for the installation, total up the required cables for each subsystem and list them on the system cable requirement summary sheet in section 5.

Where standard-length cables are supplied with each product, this list can be used as a cable inventory checklist.

Optional cable lengths are available for some products. These cables should be listed on the summary list by part number and length in lieu of the standard cables. The total list will then contain all of the products, and their respective cables, that form the proposed system.

Optional cable lengths must be special-ordered at the time of order.

When configuring a system, take into consideration the vertical distance required to route the cables from the floor to the equipment located within the enclosure being used. For example:

- A 616-xx mounted in a 1787-4 (top) requires 66 in. (167.6 cm) of vertical cable length .
- A 1784-1/-2 mounted in a 1787-4 or on a 1787-3/-5/-6 requires 41 in. (104.4 cm) of cable length from the floor to the connector panel.
- A 1783-1 mounted below a table/desk enclosure requires 21 in. (53.3 cm) of cable length from the floor to the connector panel.

# 1784-1/-2 CENTRAL PROCESSOR UNIT

EIGHT MEMORY MODULES								MEMORY ADDRESS		MEMORY CONTROL		CENTRAL PROCESSOR UNIT						CARTRIDGE DISK CONTROLLER				NRZI MAGNETIC TAPE CONTROLLER			PHASE ENCODING FORMATTER			A/Q BUS (2)		DSA BUS (3)		A/Q BUS (2)			
												ALU	ALU	DECODER	TIMING	I/O INTERFACE	CONSOLE INTERFACE	TELETYPEWRITER CONTROLLER	A/Q	SHIFTER	SECTOR COUNT	DSA	DISK DAISY CHAIN	UPPER DATA	LOWER DATA	Q CHANNEL	TAPE INTERFACE	P.F. CONTROL	P.F. DATA	P.F. DATA					
36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

The 1784-1/-2 includes the power supply, computer logic, memory, an operators console, prewired positions for the 1733-2 and the 1732-3, and prewired A/Q and DSA positions for standard or special A/Q and DSA controllers.

- Includes an internal TTY/CDT cable assembly, part no. 89684200, length 12 inches (30.5 cm)
- Includes an external TTY cable assembly,<sup>†</sup> part no. 89642300. The standard length (maximum) is 20 feet (6.15 m). A 9-foot (2.77 m) length, part no. 89642301, is available by special order.
- Includes an external CDT cable assembly,<sup>†</sup> part no. 89668300. The standard length is 20 feet (6.15 m). The maximum length is 50 feet (15.38 m). A 9-foot (2.77 m) length, part no. 89668301, is available by special order.

<sup>†</sup>Only one TTY or CDT system may be used at a time.

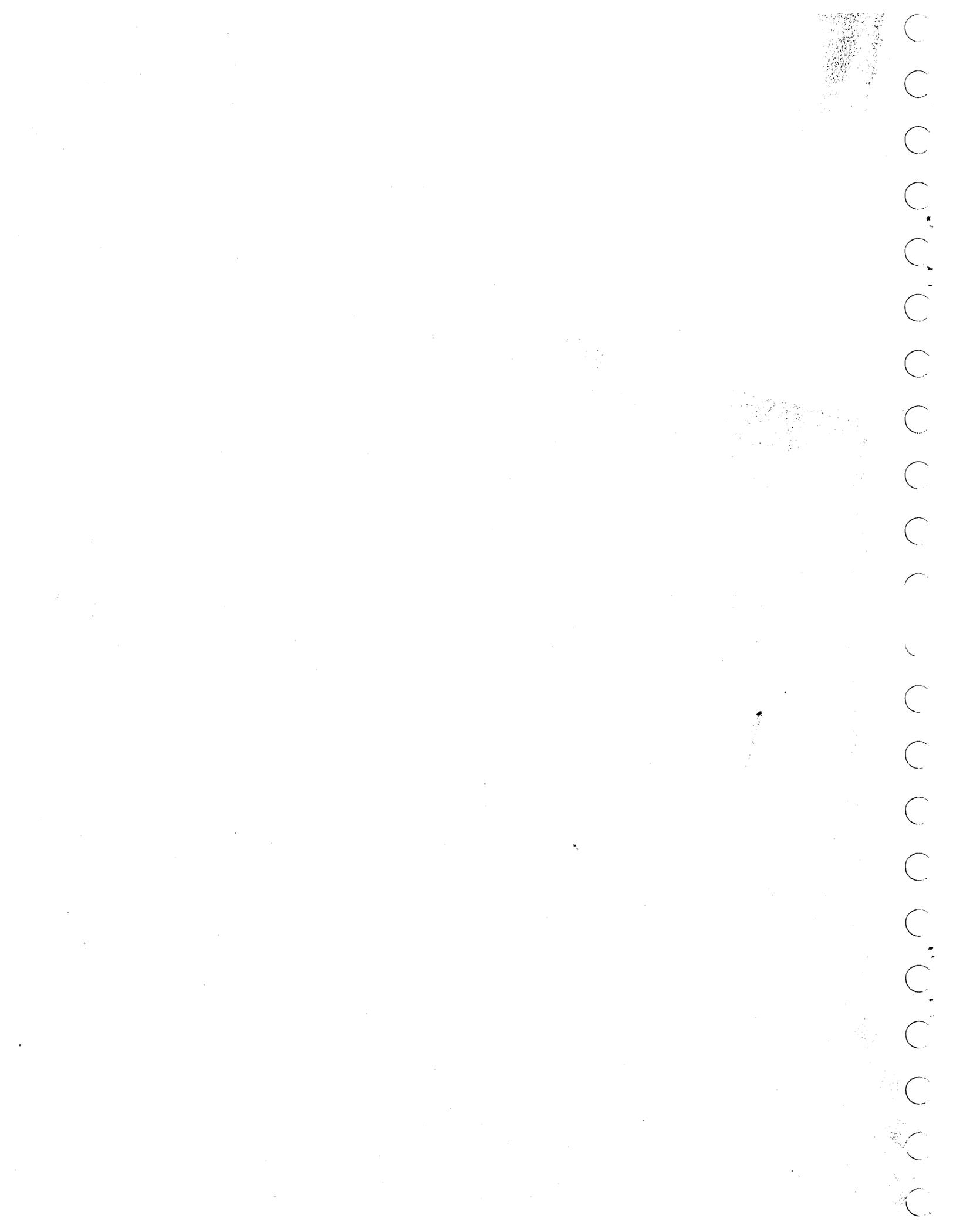
- Includes a detachable power cord, Belden S. 94, 115 vac, 60 Hz, single-phase, 6-foot (1.84 m) length, part no. 89702200, with standard 15 amp, three-prong connector. Mates with 5261 or 5262 Hubbel receptacle.
- The unit is self-contained, but may be installed into equipment cabinets or table/desk-top enclosures.
- The unit is field-adaptable to 50 Hz, 230 vac power. This will require a customer-provided 50 Hz connector if it is not connected directly to the power distribution assembly.
- The unit has an integral interface to a 10297-1 Memory Hold Battery option.

# 1783-1 EXPANSION ENCLOSURE

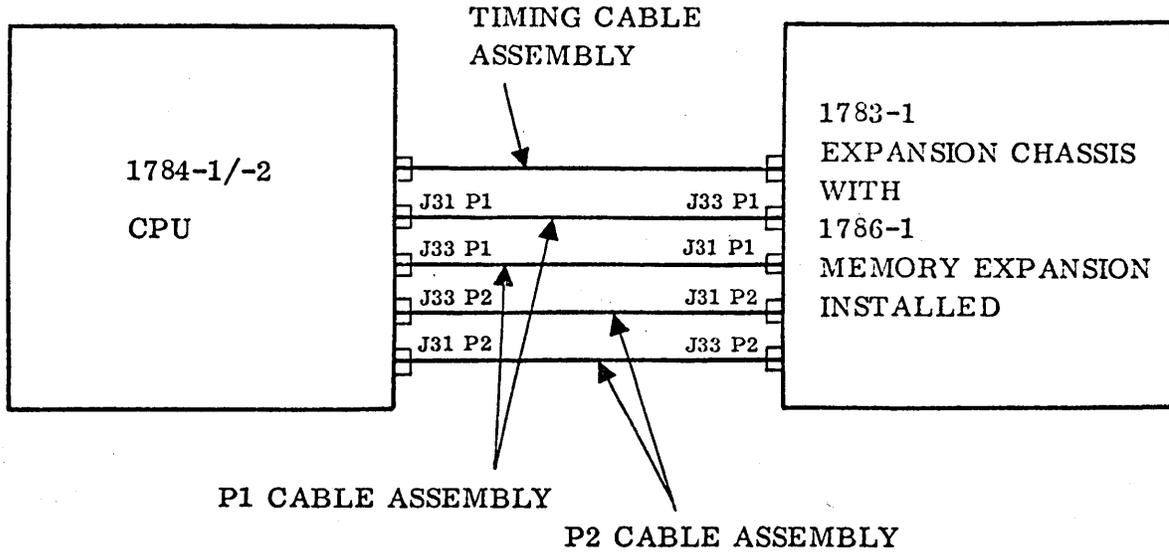
EIGHT MEMORY MODULES								MEMORY ADDRESS	MEMORY CONTROL	RESTRICTED	OPEN	A/Q BUS	OPEN	A/Q BUS	OPEN	A/Q BUS	DSA BUS	DSA BUS	DSA BUS	A/Q BUS	DSA BUS	A/Q BUS													
36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

The 1783-1 includes the power supply, prewired positions for additional memory and memory control, prewired A/Q and DSA positions, and open positions for standard A/Q, DSA, or special equipment.

- Includes detachable power cord, Belden S. 94, 115 vac, 60 Hz, single-phase, 6-foot (1.84 m) length.
- The unit is self-contained but may be installed into equipment cabinets or table/desk-top enclosures.
- The unit is field-adaptable to 50 Hz.
- The unit has an integral interface to a 10297-1 Memory Hold Battery option.



## 1786-1 MEMORY EXPANSION SUBSYSTEM



The 1786-1 utilizes 10 prewired positions in the 1783-1 as a means of increasing the memory capacity of the SYSTEM 17. It allows addition of 32K of memory plus a memory control interface. When installed, it requires a 1783-1.

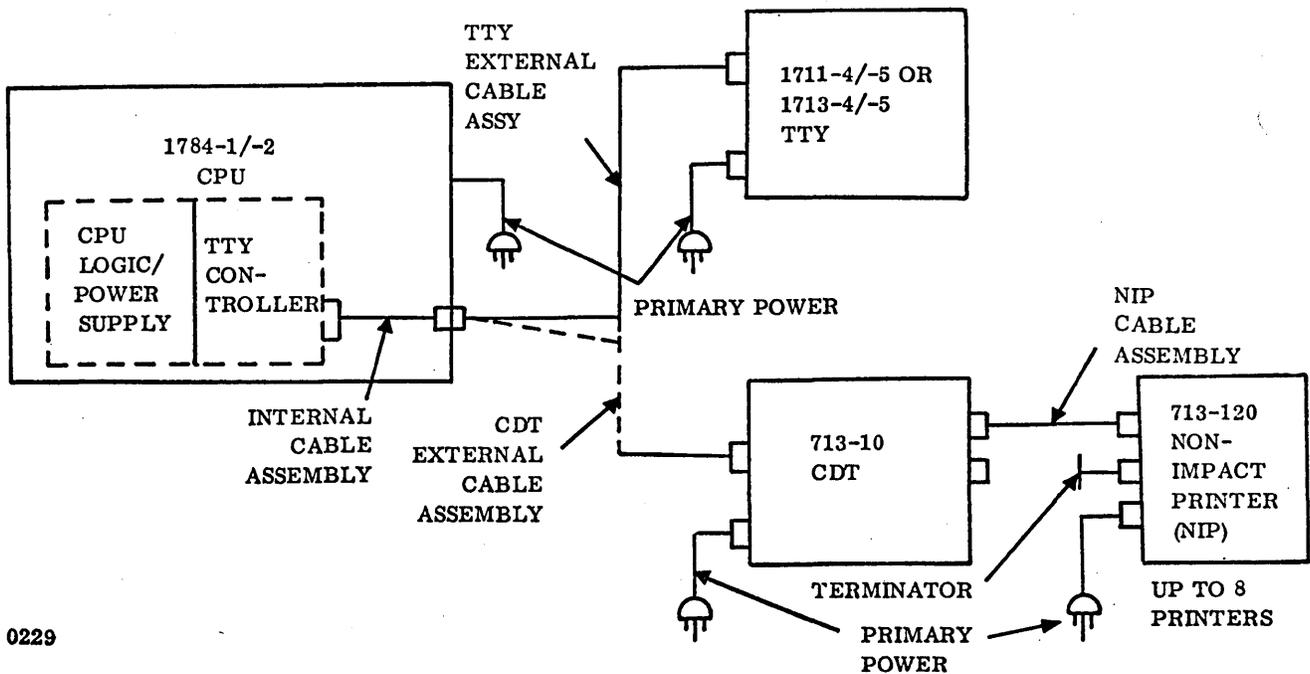
The 1786-1 includes:

- P1 cable assembly, part no. 89658100 (2 required)
- P2 cable assembly, part no. 89658500 (2 required)
- Timing cable assembly, part no. 89802800 (1 required)
- P1, P2, and timing cables are 33 inches (84 cm) long.
- One each memory control interface, consisting of one memory address and one memory controller board assembly.

NOTE: The 1786-1 does not include additional increments of memory.



## 1711, 1713 TELETYPEWRITER AND 713-10/-120 CDT/PRINTER



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The 1784-1/-2 central processing unit includes:

- CPU logic, power supply, basic housing, and console (it includes the TTY controller)
- The internal TTY logic cable assembly, part no. 89684200, length 14 inches (36 cm).
- The external TTY logic cable assembly, part no. 89642300, length (maximum) 20 feet (6.15 m). A 20-foot cable is provided. See the description of the 1784-1/-2 CPU.
- The external CDT logic cable assembly, part no. 89668300, length (maximum) is 50 feet (15.38 m); 20 feet (6.15 m) is provided. See the description of the 1784-1/-2 CPU.
- Power cord, detachable, Belden S. 94, 115 vac, 60 Hz, single-phase, 6-foot (1.84 m) length. See the description of the 1784-1/-2 CPU.
- Prewired interrupt (no. 1) for the TTY controller.

The 1711-4/-5 or 1713-4/-5 includes:

- The basic teletypewriter
- The attached power cord: 115 vac, 60 Hz, single-phase, 6-foot (1.84 m) length with standard 15 amp, three-prong connector that mates with a 5261 or 5262 Hubbel connector. 50 Hz, 115 vac connectors must be supplied by the customer.

The 713-10 includes:

- The inter-CDT/modem cable assembly, part no. 62032102. Standard length, 20 feet (6.15 m). Available in lengths up to 50 feet (15.38 m) by special order.†
- Conversational display terminal
- Attached power cord, 115 vac, 60 Hz, single-phase, 6-foot length (1.84 m) with standard 15 amp, three-prong connector that mates with a 5261 or 5262 Hubbel connector. 50 Hz, 115 vac connectors must be supplied by the customer.

The 713-120 includes:

- Non-impact printer (NIP) device
- Terminator assembly, part no. 60278900

† The following optional lengths are available:

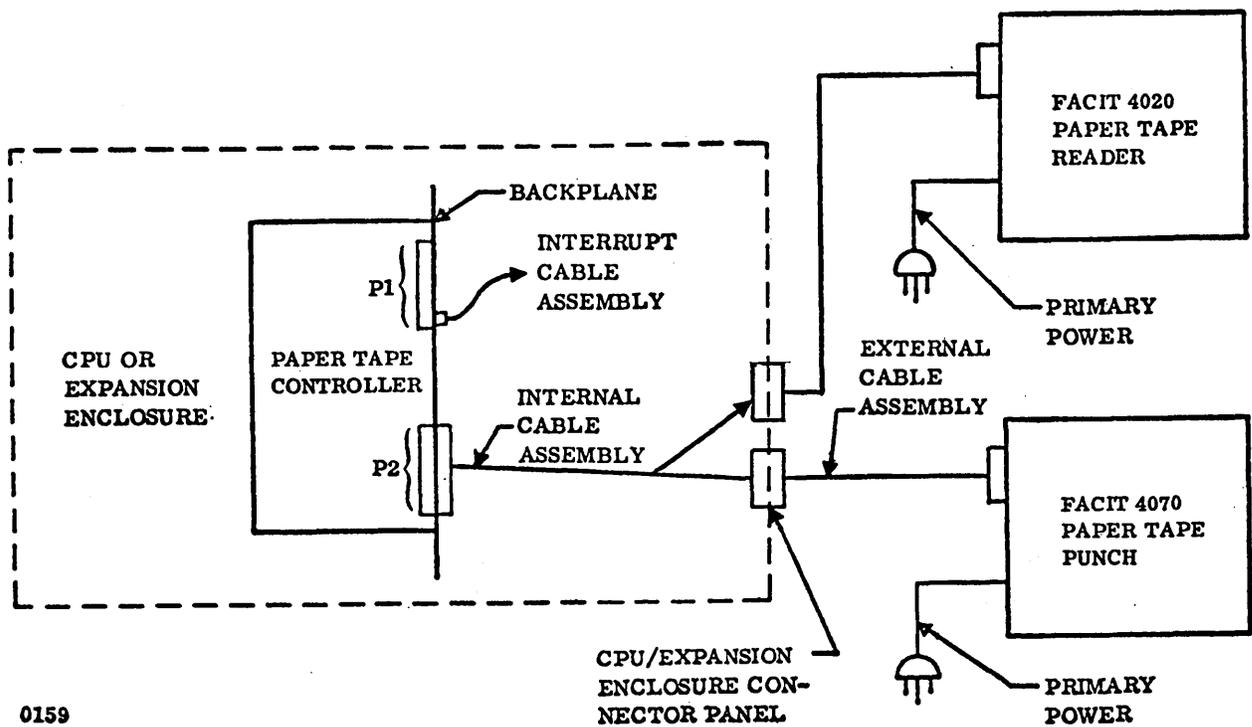
5 feet 6 inches (1.69 m)	Part no. 62032100
10 feet 6 inches (3.23 m)	Part no. 62032101
30 feet 6 inches (9.54 m)	Part no. 62032103
25 feet 6 inches (7.85 m)	Part no. 62032104
40 feet 6 inches (12.46 m)	Part no. 62032105
50 feet (15.38 m)	Part no. 62032106

- Attached power cord, 115 vac, 60 Hz, single-phase, 6-foot (1.84 m) length, with standard 15 amp, three-prong connector that mates with a 5261 or 5262 Hubbel receptacle. 50 Hz 115 vac connectors must be supplied by the customer.
- NIP interface cable assembly, part no. 62078801. 5-foot (1.54 m) length supplied. Available in lengths up to 1500 feet (461.5 m) on special order.

**NOTE:** Only the TTY or the CDT may be used with the controller at a time. Both units cannot be used at the same time.



## 1720-1 PAPER TAPE PUNCH/READER SUBSYSTEM



This subsystem requires one 1720-1 Paper Tape Controller and one FACIT 4070 Paper Tape Punch and/or one FACIT 4020 Paper Tape Reader.

The 1720-1 Paper Tape Controller includes:

- One controller board assembly that mounts in an available A/Q position in the 1784-1/-2 or the 1783-1. When mounted in a 1783-1, a 1785-1 is required.
- One interrupt cable assembly, part no. 89724702, length 14 inches (36 cm).
- One internal cable assembly, part no. 89918200, length 12 inches (30.5 cm).
- One external paper tape reader cable assembly, part no. 89918100, length 5 feet (1.54 m) maximum, standard.

- One external paper tape punch cable assembly, part no. 89918000, length 5 feet (1.54m) maximum, standard.

The FACIT Paper Tape Reader includes:

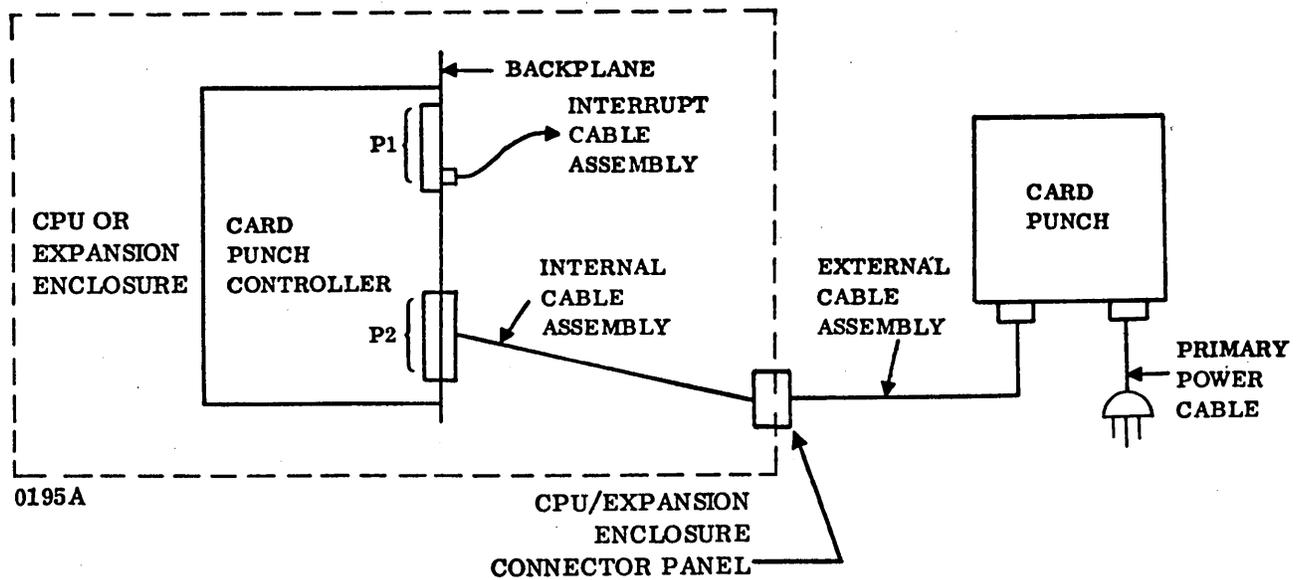
- One FACIT 4020 tape reader assembly, rack mountable.
- One detachable power cord, 115 vac, 50/60 Hz, single-phase, 10-foot (3.08 m) (Belden S.104) with standard 15 amp, three-prong connector that mates with a 5261 or 5262 Hubbel receptacle. 50 Hz, 115 vac connectors must be supplied by the customer.

The FACIT Paper Tape Punch includes:

- One FACIT 4070 Paper Tape Punch assembly, rack-mountable.
- One detachable power cord, 115 vac, 50/60 Hz, single-phase, 10-foot (3.08 m) (Belden S.104) with standard 15 amp, three-prong connector that mates with a 5261 or 5262 Hubbel receptacle. 50 Hz, 115 vac connectors must be supplied by the customer.

NOTE: FACIT equipment is not marketed by Control Data and must be obtained from FACIT.

## 1725-1 CARD PUNCH SUBSYSTEM



This subsystem requires one 1725-1 Card Punch Controller and one 1725-1 Card Punch.

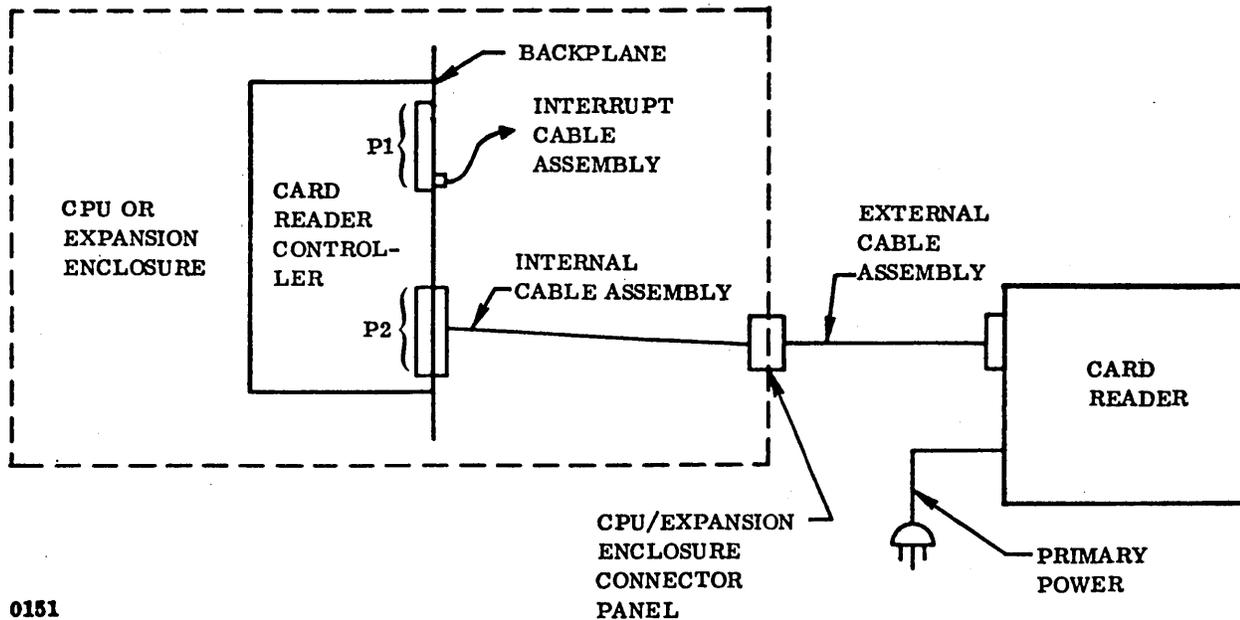
The 1725-1 Card Punch Controller includes:

- One controller board assembly that mounts in an available A/Q position in either the 1784-1/-2 CPU or the 1783-1/Expansion Enclosure. When mounted in a 1783-1, a 1785-1 is required.
- One interrupt cable assembly, part no. 89724702, length 14 inches (36 cm).
- One internal cable assembly, part no. 89641800, length 12 inches (30.5 cm).
- One external cable assembly, part no. 89920000, length 15 feet (4.62 m) standard. 15 feet is the maximum length available.

The 1725-1 Card Punch includes self-contained punch logic and mechanics. The power cord and connector must be supplied by the customer.



## 1729-3 CARD READER SUBSYSTEM



0151

This subsystem requires one 1729-3 Card Reader Controller and one 1729-3 Card Reader.

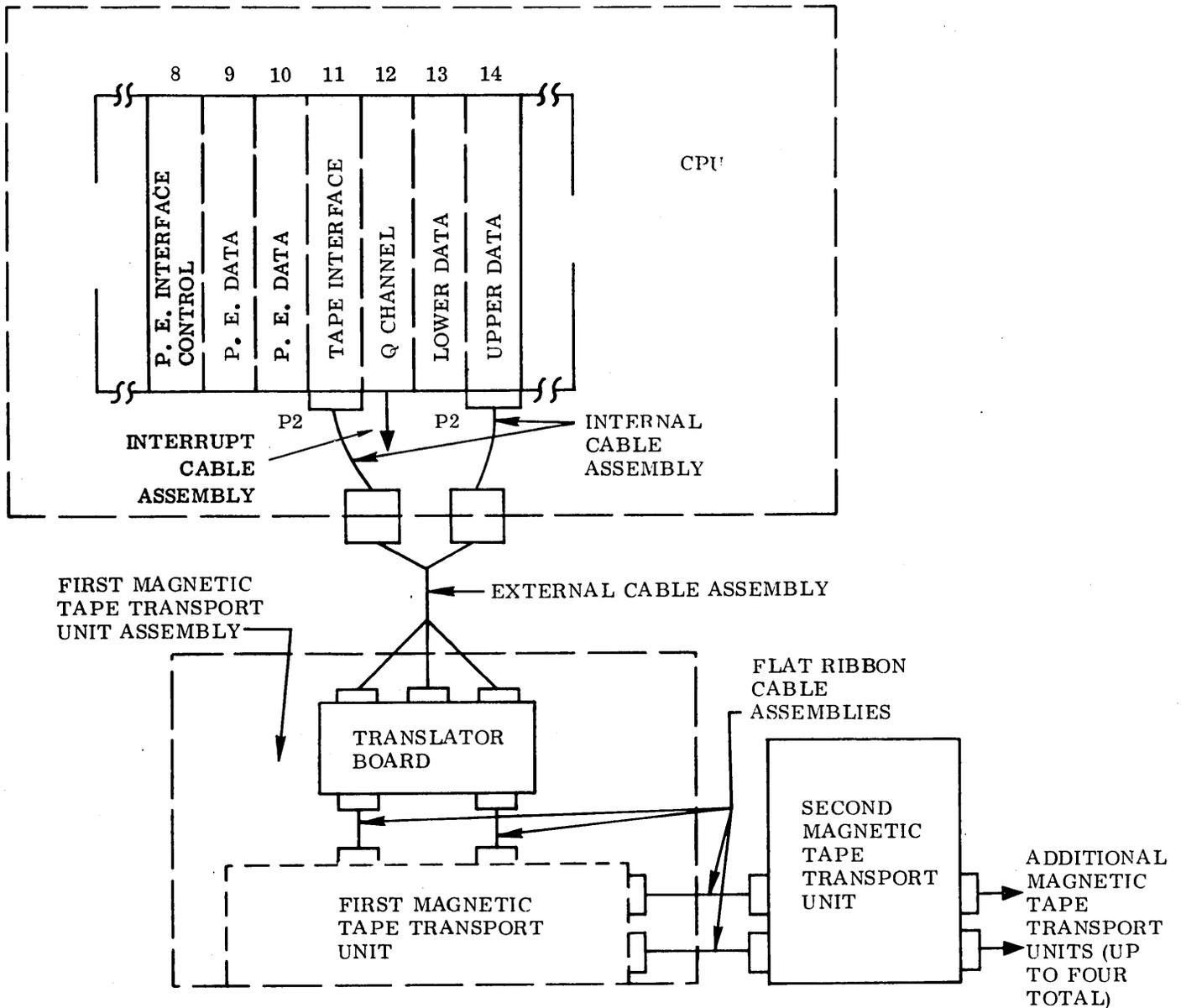
The 1729-3 Card Reader Controller includes:

- One controller card that mounts in an available A/Q position of either the 1784-1/-2 CPU or the 1783-1 Expansion Enclosure. When mounted in the 1783-1, a 1785-1 is required.
- One external logic cable assembly, part no. 89669300; standard length is 10 feet (3.08 m). A 15-foot (4.62 m) cable is available on special order.
- One internal logic cable assembly, part no. 89641800; standard length is 12 inches (30.5 cm).
- One interrupt cable assembly, part no. 89724702; standard length is 14 inches (36 cm).

The 1729-3 Card Reader includes:

- Card reader electronic/mechanical enclosed assembly
- One attached power cord, 115 vac, 60 Hz, single-phase, with standard 15 amp, three-prong connector
- Input hopper card weight

## 1732-3 MAGNETIC TAPE SUBSYSTEM



The magnetic tape subsystem requires one 1732-3 controller, one translator board assembly, and up to four (any combination) 616-72/-92, or -95 Magnetic Tape Transports.

The 1732-3 controller includes:

- One controller consisting of four board assemblies that mount in prewired positions in the 1784-1/-2 CPU. Three additional board

assemblies may be mounted in prewired positions to provide phase encode capability. (Option 10300-2, EC no. FV618)

- One interrupt cable assembly, part no. 89724702, length 14 inches (36 cm).
- Two internal cable assemblies, part no. 89700200, length 12 inches (30.5 cm).
- One external cable assembly, part no 89805300, standard length 20 feet (6.15 m). Part no. 89899000 is used on the FA446-A (series A04 and up), with a standard length of 20 feet. The maximum cable length between the controller and the universal translator board cannot exceed 20 feet. Non-standard cable lengths may be obtained via special order.
- One universal translator board assembly (BW805) with mounting hardware that mounts in the first magnetic tape transport.
- Two flat cable assemblies, part no. 95875201, that connect the universal translator to the first magnetic tape transport. The standard length is 2 feet (61 cm).

The 616-72/-92/-95 Magnetic Tape Transport includes:

- Basic magnetic tape unit: Either 616-72 (seven-track, 25 ips, NRZI, ANSI), 616-92 (nine-track, 25 ips, ANSI, dual-mode), or 616-95 (nine-track, 50 ips, ANSI, dual mode).
- Each tape unit includes two daisy chain assemblies, part no. 95875203. The standard length is 20 feet (6.15 m). Other lengths are available via special order.† NOTE: The maximum cable

†Optional cable lengths available include:

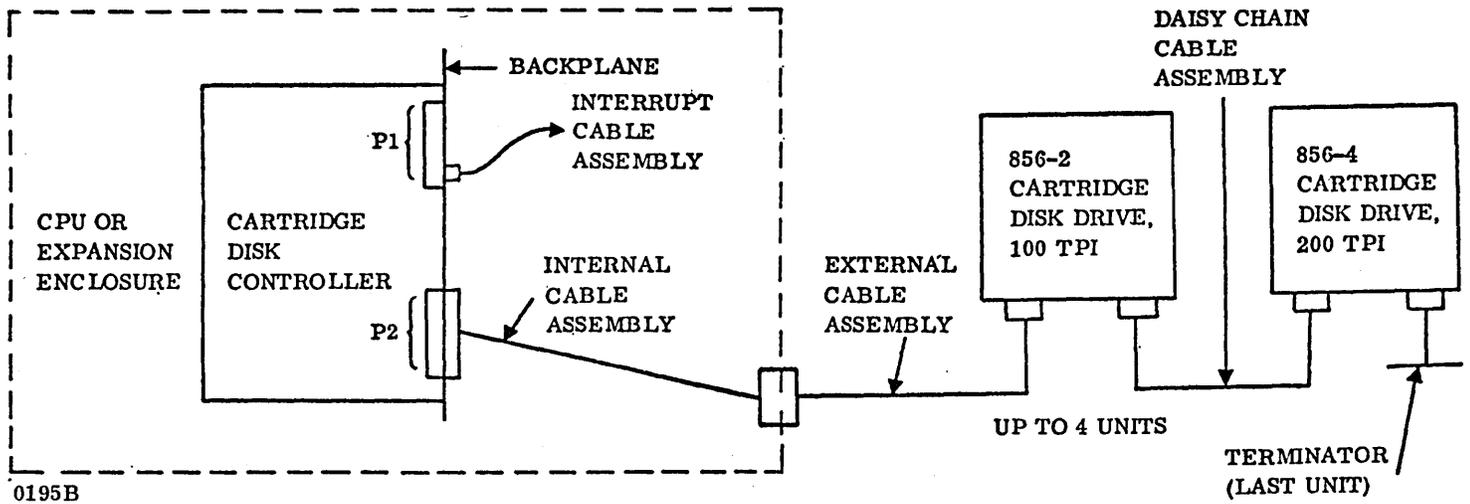
12 feet	Part no. 95875202
4 feet	Part no. 95875204
10 feet	Part no. 89899001

length from the universal translator board to the last magnetic tape unit is 60 feet (18.5 m) although 62 feet (19.1 m) is allowable.

- The last magnetic tape unit does not need terminators.
- Each tape transport includes a detachable 8-foot (2.46 m) power cord, single-phase, that is open-ended (part no. 88820000).
- Magnetic tape units are rack-mountable. No enclosures are included.



## 1733-2 CARTRIDGE DISK DRIVE SUBSYSTEM



The cartridge disk drive subsystem requires one 1733-2 controller and up to four 856-2 or 856-4 drives in any combination.

The 1733-2 controller includes:

- One controller consisting of five board assemblies that mount in prewired card positions in the 1784-1/-2 CPU.
- One interrupt cable assembly, part no. 89724702, length 14 inches, (36 cm).
- One internal logic cable assembly, part no. 89700200, length 12 inches (30.5 cm).
- One external logic cable assembly, part no. <sup>89818300</sup>~~89700400~~, length 25 feet (7.69 m) standard. An optional length of 9 feet (2.77 m) is available by special order, part no. 89700401. Other lengths may be obtained by special order.

### NOTE

The total length of cable or daisy chain from the controller to the last 856 drive cannot exceed 50 feet (15.38 M).

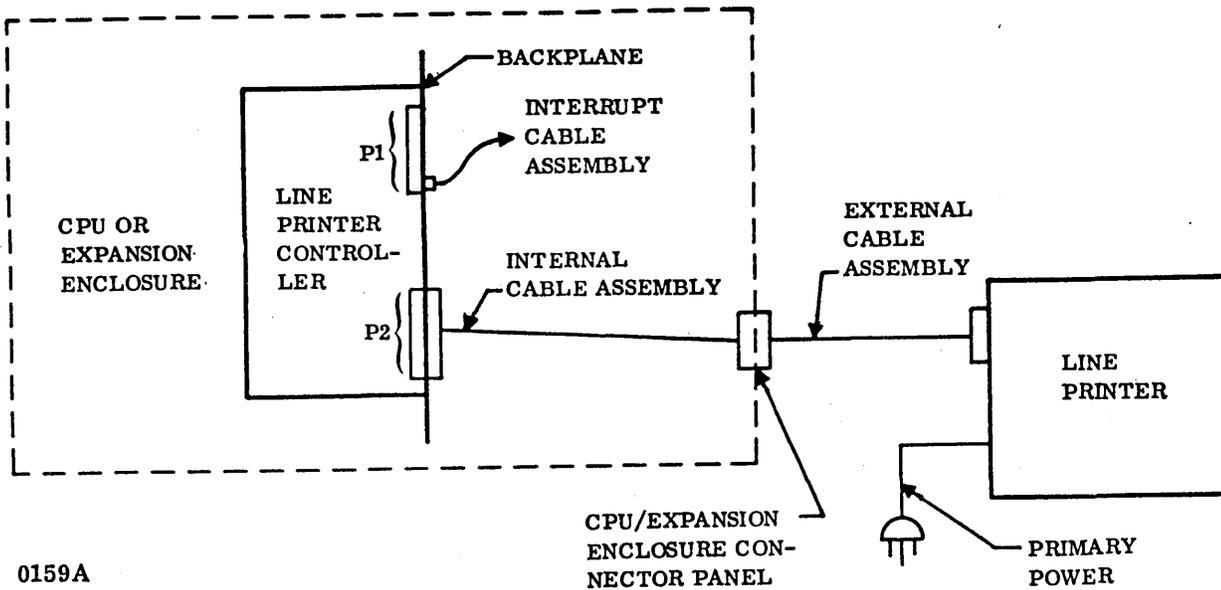
The 856-2/-4 Cartridge Disk Drive includes:

- Basic disk drive unit; either 856-2 (low density, 100 tracks per inch) or 856-4 (high density, 200 tracks per inch).
- Each drive includes one daisy chain cable assembly, part no. 46337801, standard length 10 feet (3.08 m).<sup>†</sup> The total length of cable or daisy chain from the controller to the last disk drive cannot exceed 50 feet (15.38 m).
- Each drive includes one terminator assembly, part no. 46338700. Only the last drive on the daisy chain need be terminated.
- Each drive includes an attached 7-foot (2.15 m) power cord that is terminated in either a 50 Hz or a 60 Hz single-phase connector depending upon whether a 50 or 60 Hz unit has been purchased. The 60 Hz connector is NEMA configuration plug type L5-15P; the 50 Hz connector is NEMA configuration plug type L7-15P.

<sup>†</sup> Optional cable lengths available on special order:

8 feet (2.46 m)	Part no. 46337800
15 feet (4.61 m)	Part no. 46337802
20 feet (6.15 m)	Part no. 46337803
25 feet (7.69 m)	Part no. 46337804
30 feet (9.23 m)	Part no. 46337805
50 feet (15.38 m)	Part no. 46337806

## 1742-30/-120 LINE PRINTER SUBSYSTEM



0159A

The line printer subsystem requires one 1742-30/-120 controller and either a 1742-30 or a 1742-120 Line Printer.

The 1742-30/-120 controller includes:

- One controller card that mounts in an available A/Q position of either the 1784-1/-2 CPU or the 1783-1 Expansion Enclosure. When mounted in a 1783-1, a 1785-1 is required.
- One interrupt cable assembly, part no. 89724702, length 14 inches (36 cm).
- One internal cable assembly, part no. 89641800, length 12 inches (30.5 cm).
- One external logic cable assembly, part no. 89669200, length 25 feet (7.69 m) standard. Lengths other than 25 feet up to 500 feet (153.8 m) are available via special order. Part no. 89669201 is the optional 150-foot (46.15 m) length available by special order.

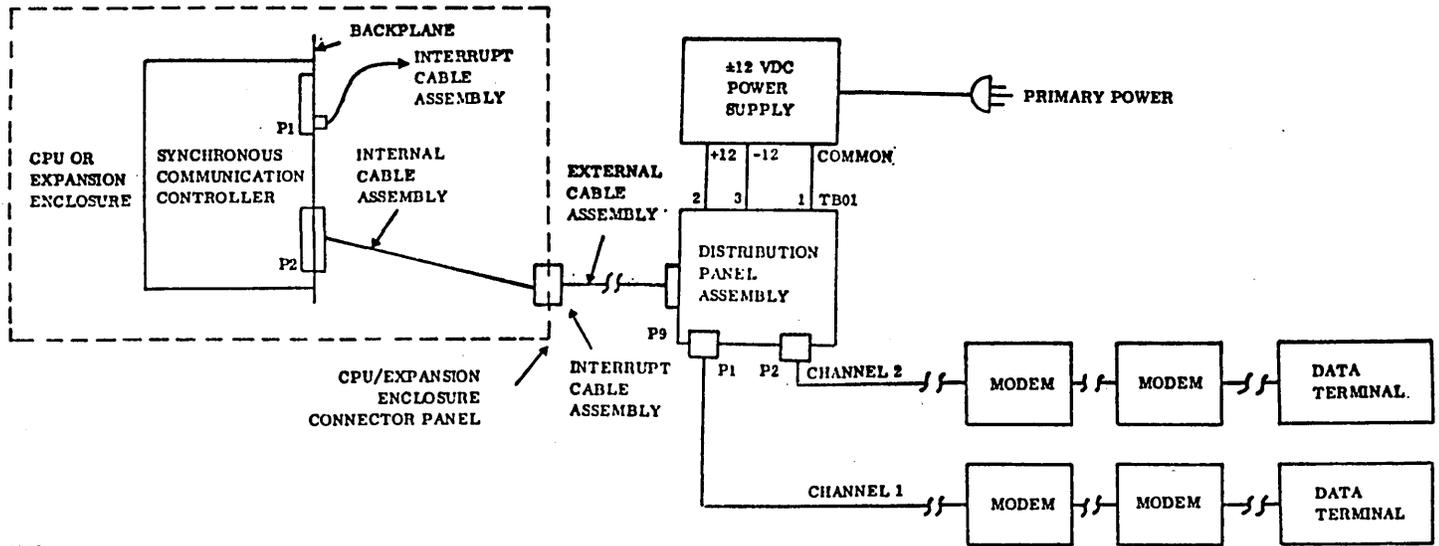
The 1742-30 printer includes:

- Cabinet-mounted printer assembly
- Attached power cord, 115 vac, 50/60 Hz, single-phase, standard length 15 feet (4.62 m). The 60 Hz connector is NEMA configuration plug type 5-20P; the 50 Hz connector is NEMA configuration plug type 6-20P.

The 1742-120 printer includes:

- Cabinet-mounted, quietized printer assembly.
- Attached power cord, 60/50 Hz, four-wire open-ended, standard length 15 feet (4.62 m) . Requires customer-furnished connector when not connected directly to the power distribution panel.

## 1743-1 SYNCHRONOUS COMMUNICATION SUBSYSTEM



The synchronous communication subsystem requires one 1743-1 Synchronous Communication Controller, one  $\pm 12$  vdc power supply option, and up to two synchronous data channels.

The 1743-1 Synchronous Communication Controller includes:

- One controller board assembly that mounts in an available A/Q position of the 1784-1/-2 CPU or the 1783-1 Expansion Enclosure. When mounted in a 1783-1, a 1785-1 is required.
- One interrupt cable assembly, part no. 89724702, length 14 inches (36 cm).
- One internal cable assembly, part no. 89641800, length 12 inches (30.5 cm).
- One external cable assembly, part no. 89663302 (on A01 series controllers); the standard length is 15 feet (4.62 m). A02 series controllers and above use cable part no. 89779602, standard

length 15 feet (4.62 m). The following optional lengths are available on special order:

4 feet (1.23 m)	Part no. 89779600
10 feet (3.08 m)	Part no. 89779601
30 feet (9.23 m)	Part no. 89779603

The maximum length between the 1743-1 and any data set is 50 feet (15.38 m).

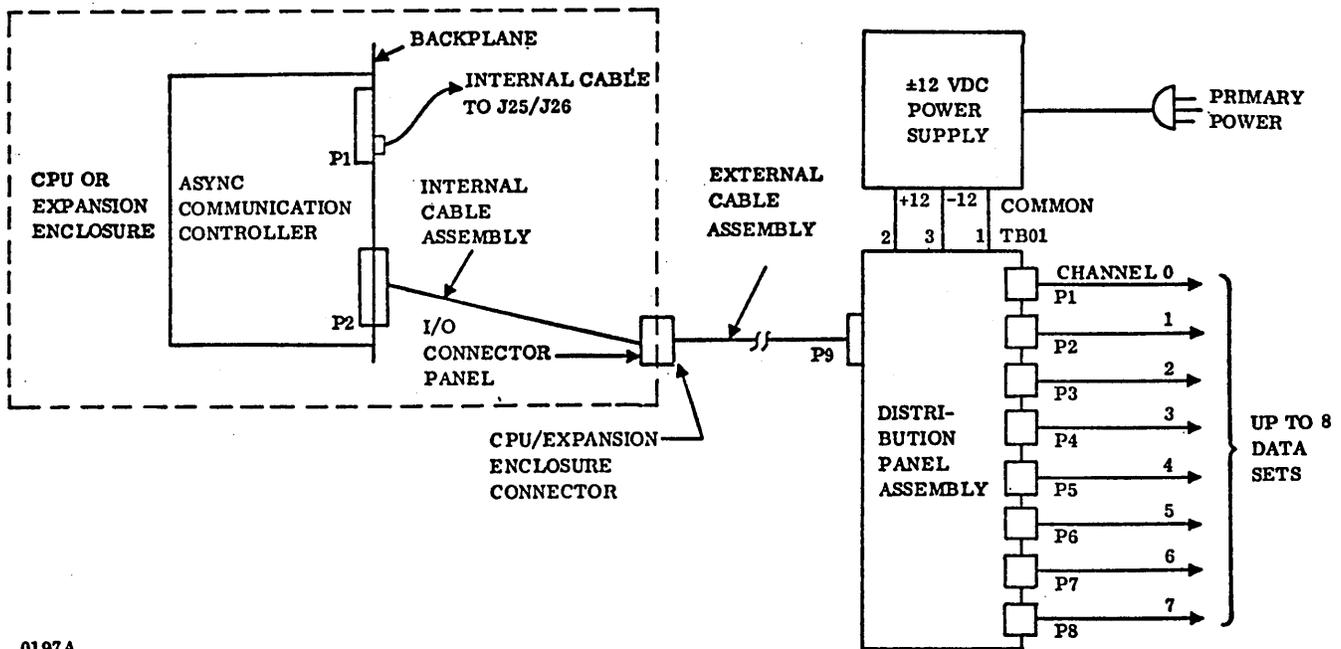
- Distribution panel assembly, part no. 89778100, rack mountable, provides connector interface between two data channels and the controller. It also accepts  $\pm 12$  vdc via terminal board connection. It requires 3.5 inches (8.9 cm) vertical mounting space.
- Communication controller distribution panel mounting kit, part no. 38981200.

The 10343-1 power supply option ( $\pm 12$  vdc) is available for those configurations that do not have an available source of  $\pm 12$  vdc. Each 1743-1 requires 250 ma of  $\pm 12$  vdc. This option must be ordered separately. The power supply drives four 1743-1s. It requires 3.5 inches (8.9 cm) of vertical mounting space.

Data sets and data set interface cables and terminals must be ordered separately or be provided by the customer. The following data set cables are available by special order:

5 feet 6 inches (1.69 m)	Part no. 62032100
10 feet 6 inches (3.23 m)	Part no. 62032101
20 feet	Part no. 62032102
30 feet 6 inches (9.54 m)	Part no. 62032103
25 feet 6 inches (7.85 m)	Part no. 62032104
40 feet 6 inches (12.46 m)	Part no. 62032105
50 feet (15.38 m)	Part no. 62032106

## 1743-2 ASYNCHRONOUS COMMUNICATION SUBSYSTEM



0197A

The asynchronous communication subsystem requires one 1743-2 controller, one  $\pm 12$  vdc power supply option, and up to eight data sets.

The 1743-2 Asynchronous Communication Controller includes:

- One controller board assembly that mounts in an available A/Q position in the 1784-1/-2 CPU or the 1783-1 Expansion Enclosure. When mounted in the 1783-1, a 1785-1 is required.
- One interrupt cable assembly, part no. 89724702, length 14 inches (36 cm).
- One internal cable assembly, part no. 89641800, length 12 inches (30.5 cm).
- One external cable assembly, part no. 89779602, length 15 feet standard. The following optional lengths are available on special order:

4 feet (1.23 m)	Part no. 89779600
10 feet (3.08 m)	Part no. 89779601
30 feet (9.23 m)	Part no. 89779603

The maximum length between the 1743-2 and any data set is 50 feet (15.38 m).

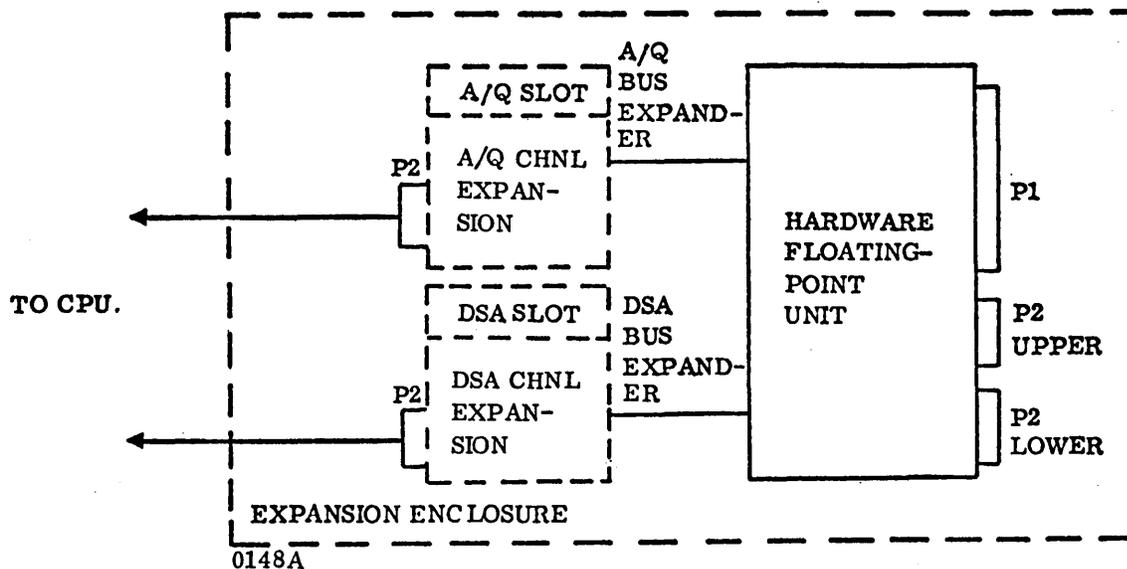
- Distribution panel assembly, part no. 89778101, rack mountable, provides connector interface between the eight data sets and the controller. It also accepts  $\pm 12$  vdc power via the terminal board connection. It requires 3.5 inches (8.9 cm) of vertical mounting space.
- Communication controller distribution panel mounting kit, part no. 38931200.

The 10343-1 power supply option ( $\pm 12$  vdc) is available for those configurations that do not have an available source of  $\pm 12$  vdc. Each 1743-2 requires 200 ma of  $\pm 12$  vdc. This option must be ordered separately. The power supply drives up to five 1743-2s. It requires 3.5 inches (8.9 cm) of vertical mounting space.

Data sets and data set cables are not provided and must be ordered separately or provided by the customer. The following data set cables are available on special order:

5 feet 6 inches (1.69 m)	Part no. 62032100
10 feet 6 inches (3.23 m)	Part no. 62032101
20 feet	Part no. 62032102
30 feet 6 inches (9.54 m)	Part no. 62032103
25 feet 6 inches (7.85 m)	Part no. 62032104
40 feet 6 inches (12.46 m)	Part no. 62032105
50 feet (15.38 m)	Part no. 62032106

## 1781-1 HARDWARE FLOATING-POINT UNIT



The hardware floating-point unit consists of seven card assemblies that mount in existing A/Q, DSA, and open slots of the expansion enclosure.

Due to the requirement of backplane interconnection boards, the hardware floating-point unit is necessarily restricted to using specific card positions. (Standard slot assignments are 15 through 23).

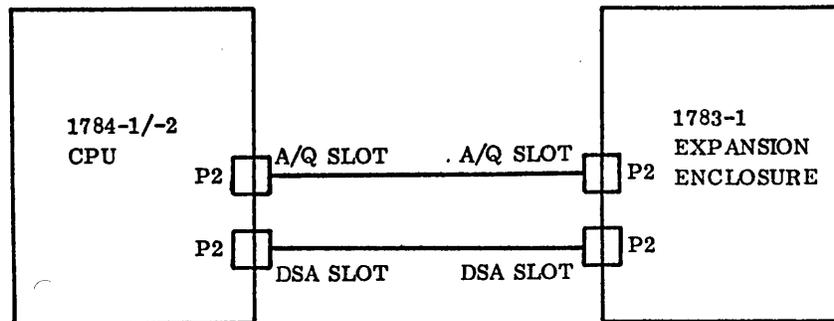
The 1781-1 includes:

- Seven card assemblies
- P1 mother board (backplane connector panel), part no. 88954400
- P2 top mother board (backplane connector panel), part no. 88954500
- P2 bottom mother board (backplane connector panel), part no. 88954600
- Mother board extractor, part no. 88954700

The 1783-1 Expansion Enclosure, 1785-1 A/Q Channel Expansion, and the 1785-2 DSA Channel Expansion are required when using a 1781-1 Hardware Floating-Point Unit.



## 1785-1/-2 A/Q-DSA CHANNEL EXPANSION



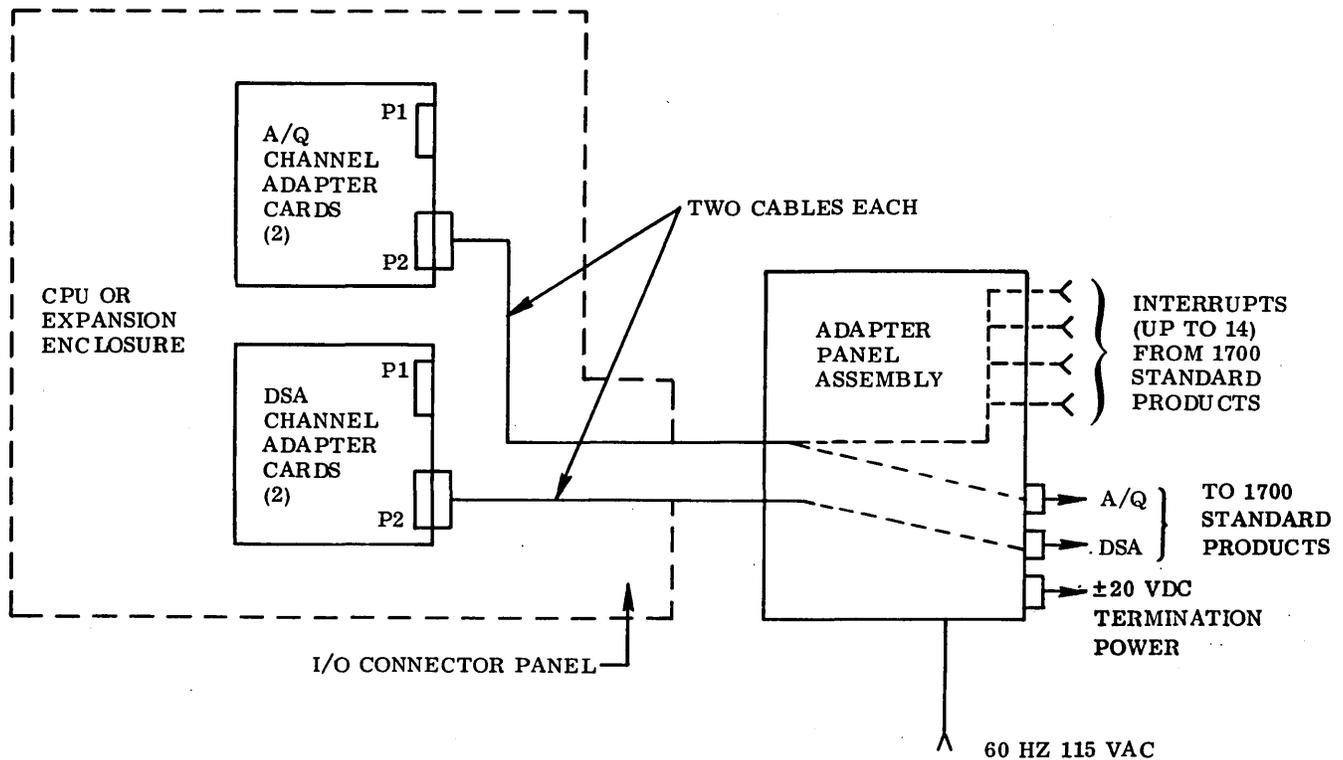
One 1785-1 is required for A/Q channel expansion, and one 1785-2 is required for DSA channel expansion. The A/Q channel expansion may be used by itself, but when a DSA channel expansion is used, an A/Q channel expansion must also be used.

The 1785-1/-2 includes:

- Expansion cable assembly, part no. 89821800, standard length 33 inches (84 cm), comes with each respective channel expansion.
- Interrupt cable assembly, part no. 89724702, standard length 14 inches (36 cm), comes only with the A/Q channel expansion. The interrupt cable assembly is also used to complete the scanner connection when using a DSA channel expansion.
- The number of interrupt cable assemblies required is dependent upon the number of devices that are to be installed in the 1783-1. Ten are normally included with each 1785-1 or 1785-2.
- One remote and one main channel expansion board assembly for each 1785-1 or 1785-2.



## 1785-3/-4 A/Q-DSA CHANNEL ADAPTER



0150

The 1785-3 is required whenever it is necessary to interface with standard 1700 Series A/Q products.

The 1785-3 A/Q channel includes:

- Two interface boards that are mounted in two available A/Q positions of the 1784-1/-2 CPU or the 1783-1 Expansion Enclosure. When mounted in a 1783-1, a 1785-1 is required.
- One enclosed power adapter panel assembly that contains standard 61-pin and interrupt connectors to interface to standard 1700 Series products. Also included are two attached cables that connect to the backplane of the two interface card positions.
- Twenty interrupt cable assemblies, part no. 88868900, that route 1700 Series interrupts to the 1784-1/-2 backplane.

- Two 61-pin terminator assemblies, part no. 30001201.
- $\pm 20$  vdc terminator power supply, part no. 39397000, rack-mountable, with attached power cord, 115 vac, single-phase, 50/60 Hz, length 6 feet (1.85 m).
- Attached power cord, 115 vac, single-phase, open-ended, standard length 10 feet (3.08 m). The customer must provide the connector if the cord is not connected directly to the power distribution assembly.
- Terminator cable assembly, part no. 38927912, standard length 24 feet (7.38 m).
- Adapter panel assembly is field-convertible to 230 vac, 50 Hz.
- Provisions for accepting a 1785-4 DSA Channel Adapter Interface.
- Mounting hardware for cabinet or table-top enclosure installation.

NOTE

61-pin cables and interrupt cables for standard 1700  
Series products are not included or referenced.

The 1785-4 is required in addition to the 1785-3 to interface with those standard 1700 Series products that require DSA operation.

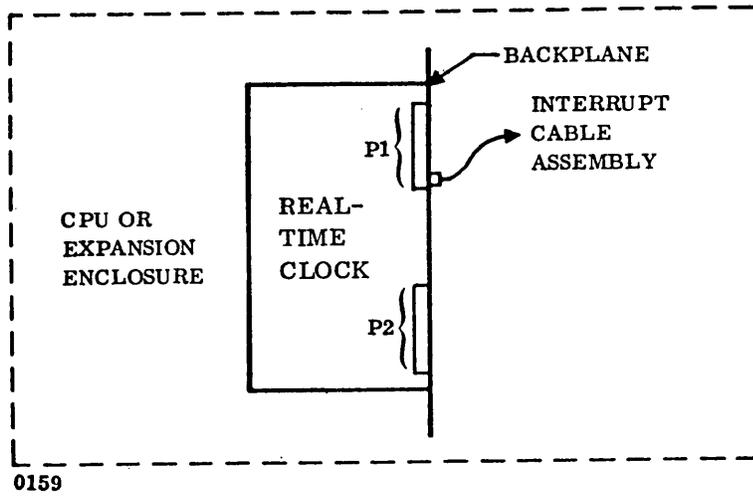
The 1785-4 DSA Channel Adapter includes:

- Two DSA interface cards that mount in two available DSA positions in the 1784-1/-2 or 1783-1. When mounted in the 1783-1, a 1785-2 is required in addition to the 1785-1.
- Two 61-pin terminator assemblies, part no. 30001201.

- Cable assembly, part no. 88983600, that contains backplane connectors and 61-pin connectors necessary to interface to 1700 Series DSA devices. The cable assembly mounts in the 1785-3 adapter panel assembly.
- Installation instruction no. 889477700 is available. It covers the installation of the 1785-3/-4 into the 1787-4 cabinet and the 10299-17 table/desk-top enclosure.



## 10336-1 REAL-TIME CLOCK

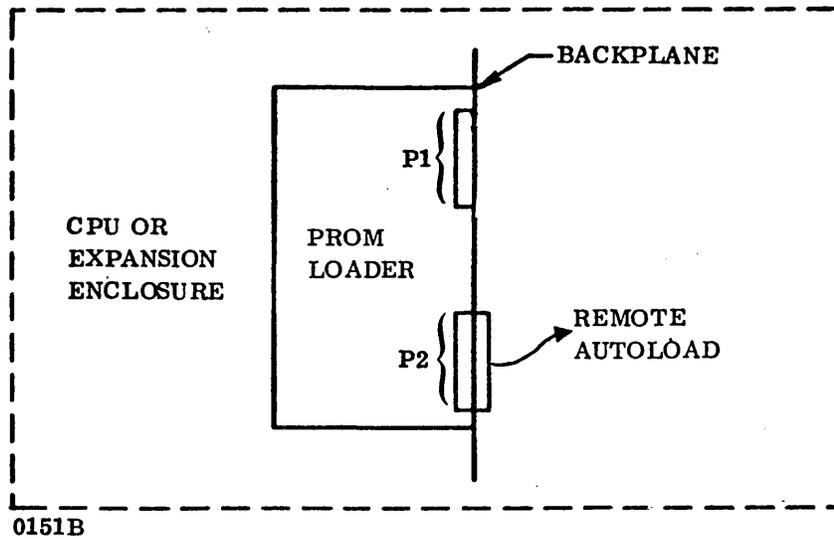


The real-time clock includes:

- One board assembly that mounts into an available A/Q position of a 1784-1/-2 CPU or 1783-1 Expansion Enclosure. When mounted in a 1783-1, a 1785-1 is required.
- One interrupt cable assembly, part no. 89724702, standard length 14 inches (36 cm).



## 65110-1 PROM LOADER

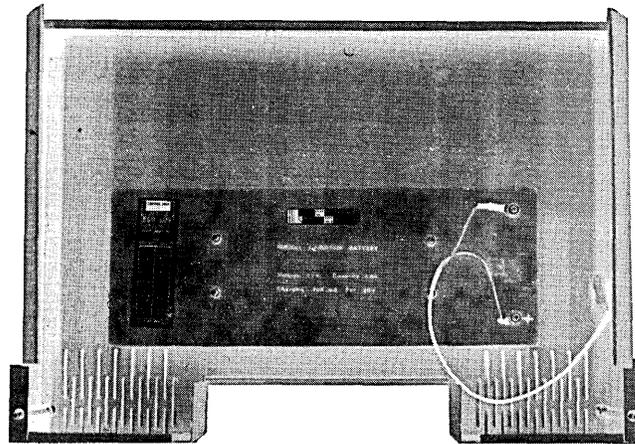


The 65110-1 Programmable Read-Only Memory Loader includes:

- One PROM loader board assembly that mounts in an available DSA position in the 1784-1/-2 CPU or the 1783-1 Expansion Enclosure. When mounted in a 1783-1, a 1785-2 is required.
- May include customer-furnished programmable read-only programs.



## 10297-1 MEMORY HOLD BATTERY OPTION



The memory hold battery option consists of a nickel cadmium battery, brackets, and cable interface that allows it to be installed on the back cover of the 1784-1/-2 CPU or the 1783-1 Expansion Enclosure. The cable connects to J0 on the upper right corner of the rear of the CPU or expansion enclosure. Each 1784 or 1783 requires one memory hold battery option.

The 10297-1 includes:

- One nickel cadmium battery
- Mounting hardware
- Interconnecting cable assembly



# ENCLOSURE CONFIGURATION

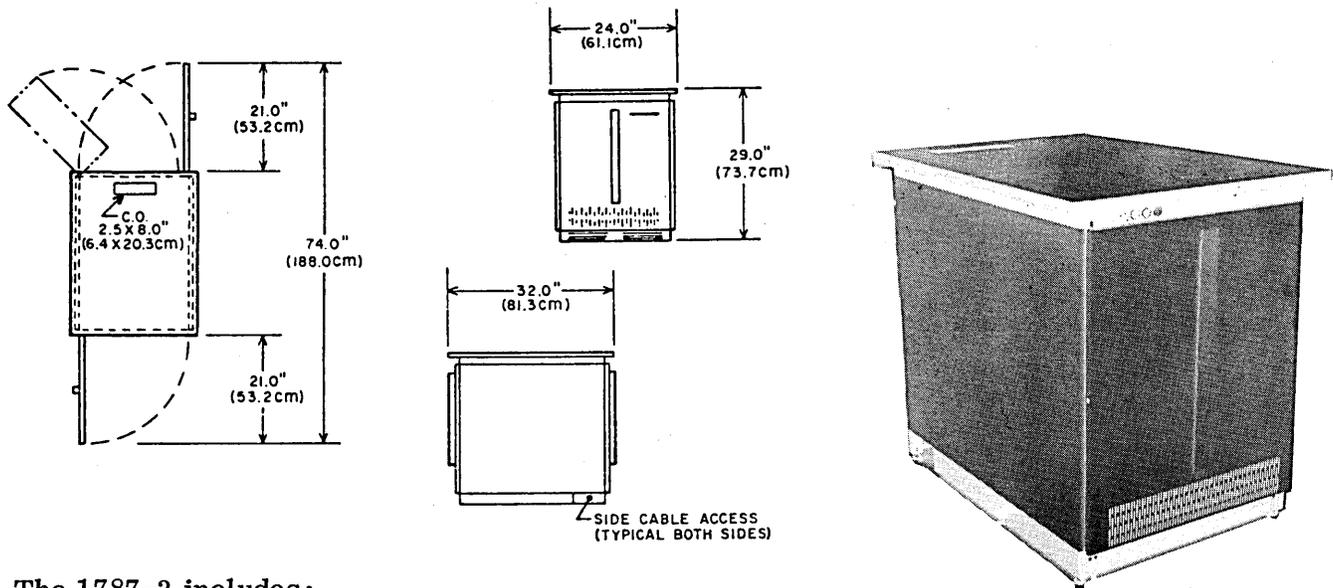
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SYSTEM 17 equipments may be housed in or positioned on a variety of enclosures. Review the products selected for your system and use the following data sheets to determine how the products may most conveniently be housed.

Use the summary sheet in section 6 to summarize the enclosures required to house the selected products.



## 1787-3 PEDESTAL CABINET



### The 1787-3 includes:

- Power distribution box with RF filter, circuit breakers, high temperature warning and shutdown, and convenience outlets.
- Power access through the bottom opening.
- Lower air entry grill with filter
- Upper air exit grill
- Cable entry, bottom rear and on either side
- Hinged front and rear doors
- Leveling pads (solid)

### The 1787-3 may be used:

- As a base for the self-contained 1729-3 Card Reader
- As a base for the self-contained 713-10 CDT or 713-120 NIP (requires 713-10)
- As a base for the 1784-1/-2 CPU when used with the 10299-17 optional enclosure

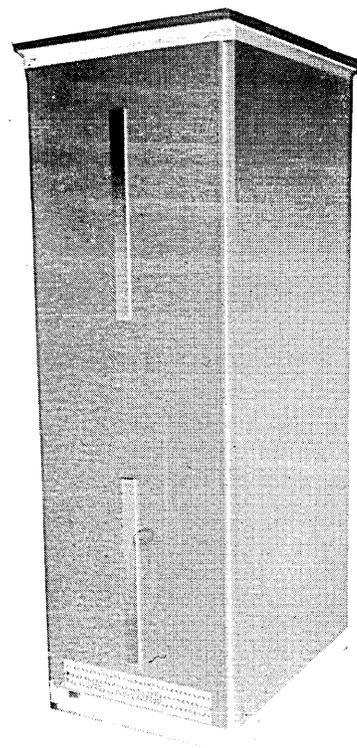
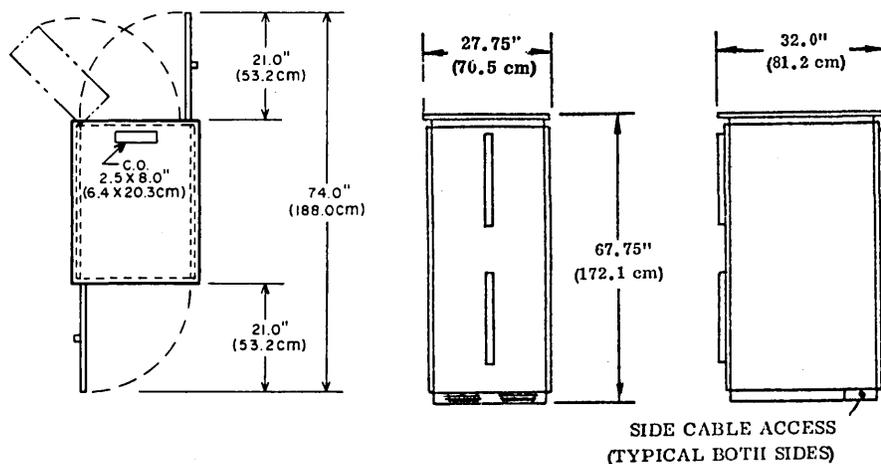
- To house 1500 Series IOM (input/output module) equipment
- To house 19-inch RETMA rack-mountable equipments
- To house up to two 1500 Series IOM modules

Installation instruction no. 96761600 is available; it tells how to install the CPU in a 10299-17 that may be mounted on top of the 1787-3.

Optional 1787-3 enhancements include:

- 10299-25 hinged power supply for use with 1500 Series equipments
- 10299-20 blower assembly
- 10299-21 220 vac 50 Hz conversion kit

## 1787-4 DOUBLE PEDESTAL CABINET



The 1787-4 includes:

- Power distribution box with RF filters, circuit breakers, high temperature warning and shutdown, and convenience outlets.
- Power access through the bottom opening.
- Lower air entry grill with filter
- Upper air exit grill
- Hinged rear door
- Leveling pads
- Cable entry, bottom rear and on either side.

The 1787-4 may be used:

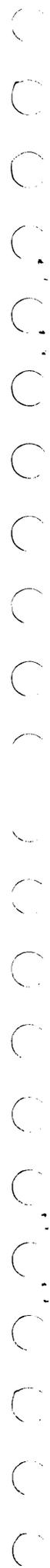
- To house a 1784-1/-2 CPU and a 1783-1 Expansion Enclosure
- To house two 616 Magnetic Tape Transports
- To house one 616 tape transport and 1500 Series IOM equipment
- To house a 1784-1/-2 and 1500 Series IOM equipment
- To house up to six 1500 Series IOM modules
- To house other 19-inch RETMA mounting equipments
- To house a 1785-3/-4 channel adapter assembly when a 1784-1/-2 is installed

Optional 1787-4 enhancements include:

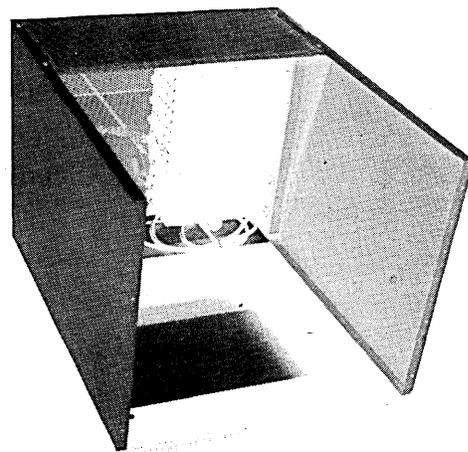
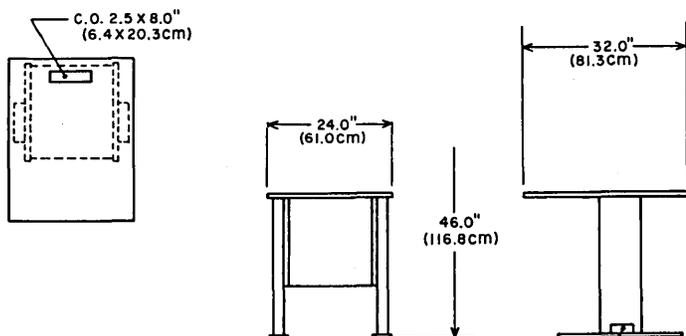
- 10299-25 hinged power supply for use with 1500 Series IOM equipment
- 10299-10 blower assembly
- 10299-21 220 vac 50 Hz conversion kit
- Four door options
  - Lower, when two 616s are installed (part no. 96784900)
  - Short, when a 1784-1/-2 or a 1784-1/-2 and a 1783-1 are installed (part no. 96784901)
  - Mid, when one 616 is installed (part no. 96784902)
  - Full, when 1500 Series IOM equipment only is installed (part no. 96784903)
- Blank panel(s) as required to enclose the space where the 1783-1 would normally be mounted, if it is not included in the system.
- 10299-23 utility writing shelf when the 1784-1/-2 is installed.

The following installation instructions are available:

- Installation instruction 96711000 — Installs a 1784-1/-2 and a 1783-1 into the 1787-4
- Installation instruction 96755100 — Installs a 616 into the 1787-4
- Installation instruction 88947700 — Installs a 1785-3/-4 into a 1787-4



## 1787-5 EQUIPMENT TABLE



The equipment table includes:

- Cable entry through legs from both sides
- Table top cable entry
- Courtesy skirt

The 1787-5 may be used:

- As a base for a 1784-1/-2 when installed in a 10299-17
- As a base for a self-contained 713-10 or 713-120 (requires a 713-10)
- As a base for a 1729-3 Card Reader (self-contained)
- To attach a 10299-18 Under-Table Enclosure that in turn will
  - House 1500 Series IOM equipment
  - House a 1783-1 Expansion Enclosure
  - House other 19-inch RETMA mounting equipment

1787-5 enhancements include the 10299-18 Under-Table Enclosure.

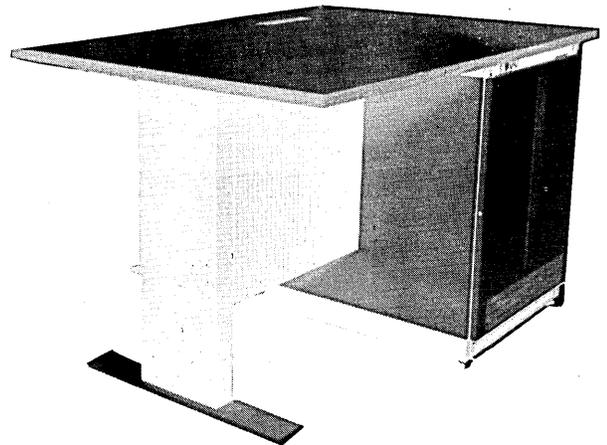
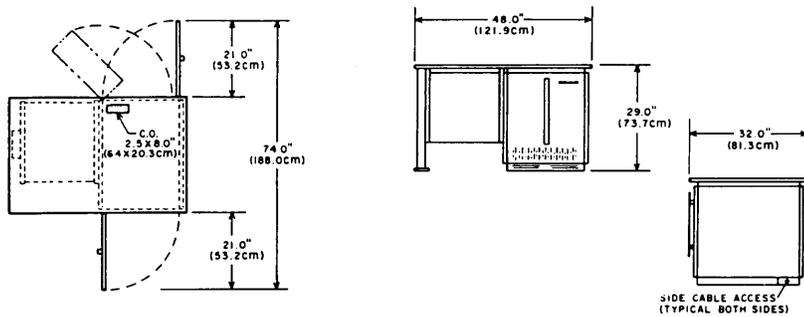
The following installation instructions are available:

- Installation instruction no. 96761600 — Installs a 1784-1/-2 into a 10299-17. Subsequently mounts on top of the 1787-5.
- Installation instruction no. 88857500 — Installs a 10299-18 on the 1787-5 and installs the 1783-1 into the 10299-18.

NOTE

No power distribution assembly is provided or available for the 1787-5.

## 1787-6 DESK CONSOLE



The desk console includes:

- Power distribution box with RF filters, circuit breakers, high temperature warning and shutdown, and convenience outlets.
- Power access through the bottom of the unit
- Front and rear doors
- Lower air entry with filter
- Cable entry at bottom, rear, and on both sides
- Courtesy skirt

The 1787-6 may be used:

- To house 1500 Series IOM equipment
- To house other 19-inch RETMA mounting equipment
- To attach a 10299-18, which in turn may house
  - A 1783-1 Expansion Enclosure
  - 1500 Series IOM equipment
  - Other RETMA-mounted equipment

- As a base for a 1784-1/-2 when installed in a 10299-17
- As a base for a 1729-3 Card Reader
- As a base for a 713-10 CDT and/or a 713-120 NIP (requires a 713-10)

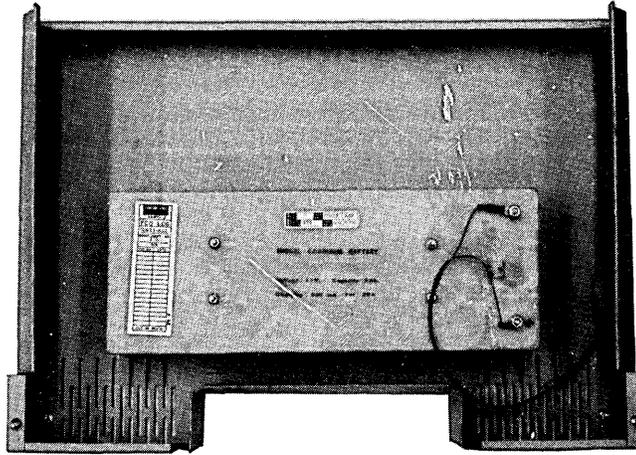
Optional enhancements for the 1787-6 include:

- 10299-18 Under-Table Enclosure
- 10299-20 blower assembly for 1500 Series IOM equipment
- 10299-25 hinged power supply housing for 1500 Series IOM equipment
- 10299-21 220 vac 50 Hz conversion kit

The following installation instructions are available:

- Installation instruction no. 96761600 — Installs a 1784-1/-2 into a 10299-17, which subsequently mounts on a 1787-6
- Installation instruction no. 88857500 — Installs a 10299-18 and installs the 1783-1 into the 10299-18

## 10299-17 TABLE-TOP ENCLOSURE



The table-top enclosure includes:

- Two side panels, one rear cover assembly, and one base mounting assembly
- Mounting hardware to install a 1784-1/-2.
- Provisions for mounting a 1785-3/-4 channel adapter

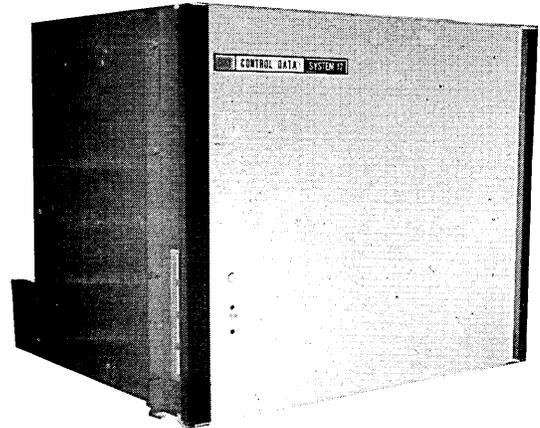
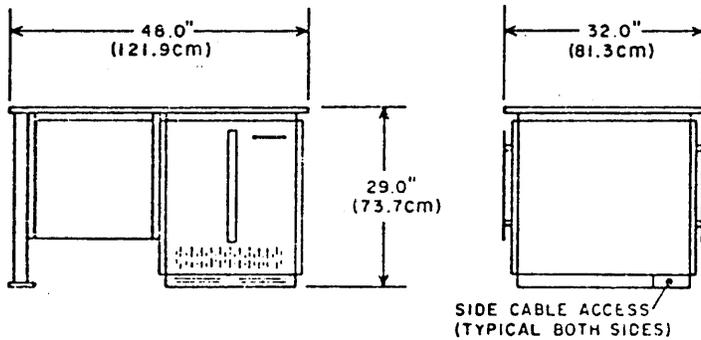
The table-top enclosure may be used:

- To house one 1784-1/-2 CPU and one 1785-3/-4 when installed upon
  - 1787-3 Pedestal Cabinet
  - 1787-5 Equipment Table
  - 1787-6 Console Desk

The following installation instructions are available:

- Installation instruction no. 96761600 — Details the assembly of the enclosure and the installation of the 1784-1/-2
- Installation instruction no. 88947700 — Details the installation of the 1785-3/-4 into the 10299-17 enclosure.

## 10299-18 UNDER-TABLE ENCLOSURE



The 10299-18 includes:

- An integral housing assembly that fits beneath a 1787-5 or 1787-6
- The required mounting hardware

The 10299-18 may be used to:

- House 19-inch RETMA-mounting equipment. It provides 17.5 inches (44.5 cm) of space
- House a 1783-1 when a 1784-1/-2 is mounted on top of the table

Installation instruction no. 8857500 details the mounting of the enclosure beneath a 1787-5/-6 and the subsequent installation of a 1783-1 Expansion Enclosure (if part of the system).







# ENCLOSURE AND INSTALLATION INSTRUCTION SUMMARY

- 1 List in the left column those equipments required for the system.
- 2 Put the installation instruction index number in the column of the enclosure that the specific equipment will be installed in and/or on.

EXAMPLE: A 1787-1/-2 may be installed in a 10299-17, which will be situated on a 1787-6. Installation instruction index 1 is placed in the 10299-17 column, and index 9 is placed in the 1787-6 column.

Installation Instruction Index	Installation of
1	1784-1/-2 into 10299-17
2	
3	616 into 1787-3
4	10299-17 on 1787-3, -5, -6
5	10299-18 on 1787-5, -6
6	1783-1 in 10299-18
7	1785-3/-4 into 1787-4/10299-17
8	10299-17 on 1787-5
9	10299-17 on 1787-6
10	10299-18 under 1787-6

Enclosures must also be considered for 1500 Series IOM equipment.

Item No.	Equipment	Enclosure					
		1787-3	1787-4	1787-5	1787-6	10299-17	10299-18
1							
2							
3							
4							
5							

Item No.	Equipment	Enclosure					
		1787-3	1787-4	1787-5	1787-6	10299-17	10299-18
6	Total from page page 6-1						
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
		Use additional page if required.					
Total for each enclosure							

**3** Total the enclosures required and the installation instructions required. Ensure that the same cabinet area or table top area is not occupied by different equipments.



# SPECIAL POWER AND CONVENIENCE OPTIONS 7

The following information deals with options that may require special considerations.

## **10343-1 12 VDC POWER SUPPLY**

The 10343-1  $\pm 12$  vdc Power Supply is used with 1743-1/-2 products when  $\pm 12$  vdc power will not be available at the customer site.

- Includes attached power cable, 115 vac, single-phase, 50/60 Hz; standard length, 6 feet (1.84 m)
- Includes three-wire cable that connects to the first 1743-1 or 1743-2 distribution panel
- 19-inch rack mounted; mounts into the 1787-3/-4 or into the 10299-18 when installed on a 1787-5/-6
- Will supply  $\pm 12$  vdc power for up to five 1743-2s
- Will supply  $\pm 12$  vdc power for up to four 1743-1s
- Includes mounting hardware

## **10299-21 220 VAC 50 HZ POWER CONVERSION KIT**

Option 10299-21 modifies power distribution assemblies used in the 1787-3/-4/-6 to accept 220 vac, 50 Hz input power instead of 115 vac, 60 Hz.

## **10299-22 POWER CONVERSION TRANSFORMER**

Option product 10299-2 enables 115 vac, single-phase, 50/60 Hz devices to be operated at sites where 95, 105, 115, 220, 230, 240, or 250 vac 50 Hz power is the main power source. It includes an enclosure that enables wall mounting. It does not include input or output power cable or receptacles. The unit may be wall-mounted or located in any space other than the equipment cabinets.

## **10299-23 UTILITY WRITING SHELF**

Option 10299-23 provides a utility writing shelf that can be added to the 1784-4 when a 1784-1/-2 is installed. Extra allowances must be made for its protrusion from the front of the cabinet.

## **1500 SERIES IOM EQUIPMENT OPTIONS**

When considering 1500 Series IOM equipments, those options used with the IOM equipment must be taken into account, such as power supply housings, blower assemblies. Extra space for both enclosure and floor space must be planned.

## **SUMMARY OF REQUIRED OPTIONS**

List below those options required for the system being configured:

- |          |           |
|----------|-----------|
| 1. _____ | 7. _____  |
| 2. _____ | 8. _____  |
| 3. _____ | 9. _____  |
| 4. _____ | 10. _____ |
| 5. _____ | 11. _____ |
| 6. _____ | 12. _____ |

# GENERAL SYSTEM REQUIREMENTS

This section contains information pertaining to the physical and electrical aspects of the system configuration.

Use the following index when referring to the table.

Support Mounting Index

- 1 Four rubber feet
- 2 Equipment enclosure
- 3 Four solid pads
- 4 Four casters
- 5 NEMA rail mounting
- 6 Self-contained
- 7 Table/desk
- 8 Bracket mounting
- 9 1784-1/-2 or 1783-1
- 10 Wall mount

Enclosure Options Index

- A 1787-3
- B 1787-4
- C 1787-5
- D 1787-6
- E 10299-17
- F 10299-18
- G 1784-1/-2
- H 1783-1
- J Self-contained

Product	Description	Dimensions (in./cm)			Weight (lb./kg)	Support	Encl.
		W	D	H			
1784-1/-2	CPU	19.0	19.0	17.88	80	1, 2, 6, 7	B, E
		48.3	48.3	45.4	36		
1783-1	Expansion Enclosure	19.0	19.0	17.88	80	1, 2, 6, 7	B, F
		48.3	48.3	45.4	36		
1782-1/-2	Memory Increment	na	na	na	na	9	G, H
1785-1	A/Q Channel Exp.	na	na	na	na	9	G, H
1785-2	DSA Channel Exp.	na	na	na	na	9	G, H

Product	Description	Dimensions (in./cm)			Weight (lb./kg)	Support	Encl.
		W	D	H			
1785-3	A/Q Channel Adapter	na	na	na	15 6.8	2, 7, 8	B, E G, H
1785-4	DSA Channel Adapter	na	na	na	na	2, 7 8	B, E, G, H
1786-1	Memory Exp. Ctlr.	na	na	na	na	9	G, H
10297-1	Memory Hold Battery	na	na	na	15 6.8	9	G, H
1733-2	Cartridge Disk Drive Controller	na	na	na	na	9	G
856-2/-4	Cartridge Disk Drive	18.5 47.0	29.75 75.5	34.0 6.4	275 125	4, 6	J
1732-3	Mag Tape Controller	na	na	na	na	9	G
616-72/ -92/-95	Magnetic Tape Unit	19.0 48.3	24.0 61.0	24.5 62.2	225 102	2, 5	A, B
10300-2	Phase Encoder Option	na	na	na	na	9	G
1742-30	Line Printer	37.5 95.3	27.0 68.6	39.25 99.7	500 227	4, 6	J
1742-120	Line Printer	62.0 157.5	45.0 114.3	50.0 127.0	1500 682	4, 6	J
1729-3	Card Reader	14.25 35.2	19.0 48.3	16.5 41.9	55 25	1, 6	J
1711-4	33 KSR TTY	18.8 47.75	18.5 47.0	33.0 83.8	52 24	3, 6	J
1711-5	35 KSR TTY	20.0 50.8	24.0 61.0	38.5 97.8	136 62	3, 6	J

160  
275  
35

Product	Description	Dimensions (in./cm)			Weight (lb./kg)	Support	Encl.
		W	D	H			
1713-4	33 ASR TTY	22.0	18.5	33.0	56	3, 6	J
		55.9	47.0	83.8	25.5		
1713-5	35 ASR TTY	40.0	24.0	38.5	225	3, 6	J
		101.6	61.0	97.8	102		
713-10	CDT	18.0	20.45	17.5	65	1, 6	J
		45.7	51.9	44.5	29.5		
713-120	Non-Impact Printer	19.0	15.2	7.2	47	1, 6	J
		48.3	38.6	18.3	21		
10343-1	±12 vdc Power Supply	19.0	8.0	3.5	12	2, 5	A, B F
		48.3	20.3	8.9	5.5		
1743-1	Synchronous Comm Distribution Panel	19.0	5.0	3.5	10	2, 5	A, B F
		48.3	12.7	8.9	4.6		
1743-2	Asynchronous Comm Distribution Panel	19.0	5.0	3.5	10	2, 5	A, B F
		48.3	12.7	8.9	4.6		
65110-1	PROM Loader	na	na	na	na	9	G, H
1720-1	Paper Tape Reader	19.0	18.0	5.25	27.7	2, 5	A, B F
	48.3	45.5	13.26	12.6			
	Paper Tape Punch	19.0	12.0	12.0	90	2, 5	A, B F
		48.3	30.5	30.5	41		
1725-1	Card Punch	33.0	27.5	48.5	500	4, 6	J
		83.8	69.9	123.1	227		
1781-1	HFPU	na	na	na	na	9	H
10299-22	Power Conversion Transformer	19.0	8.0	10.0	110	10	J
		48.3	20.3	25.4	50		
10336-1	Real-Time Clock	na	na	na	na	9	G, H
1787-3	Pedestal Cabinet	24.0	32.0	29.0	175	3	na
		61.0	81.3	73.7	79.5		

Product	Description	Dimensions (in./cm)			Weight (lb./kg)	Support	Encl.
		W	D	H			
1787-4	Equipment Cabinet	22.75	32.0	67.76	265	3	na
		57.9	81.3	172.1	120.5		
1787-5	Equipment Table	24.0	32.0	29.0	75	3	na
		61.0	81.3	73.7	34		
1787-6	Desk Console	48.0	32.0	29.0	265	3	na
		121.9	81.3	73.7	120.5		
10299-17	Table-Top Enclosure	22.75	38.0	29.0	125	7	na
		57.9	96.5	73.7	56		
10299-23	Utility Writing Shelf	19.0	3.5	15.5	10	8	B
		48.3	8.9	39.4	4.6		
10299-18	Under-Table Enclosure	22.75	32.0	29.0	125	7	na
		57.9	81.3	73.7	56		

# ENVIRONMENTAL CHARACTERISTICS

## HEAT DISSIPATION

Product	Description	BTU/Hr.	Kcal/Hr.
1784-1/-2	Central Processing Unit	1900†	478
1783-1	Expansion Enclosure	1900†	478
856-2/-4	Disk Drive Unit	2600	655
616-72/-92/-95	Magnetic Tape Unit	3300	831
1742-30	Line Printer	2900	730
1742-120	Line Printer	10000	2500
1729-30	Card Reader	1000	252
1711-4	33 KSR Teletypewriter	700	176
1711-5	35 KSR Teletypewriter	1000	252
1713-4	33 ASR Teletypewriter	700	176
1713-5	35 ASR Teletypewriter	1300	252
713-10	Conversational Display Terminal	580	146
713-120	Non-Impact Printer	1000	252
1720-1	Paper Tape Reader	700	175
	Paper Tape Punch	1000	252
1725-1	Card Punch	2380	600

† Full complement of cards and controllers.

## ENVIRONMENTAL REQUIREMENTS

The operating temperature rate is: 60° F to 90° F (15.6° C to 32.2° C)

The maximum rate of temperature change is 12° F (7° C per hour)

The operating relative humidity is from 30 to 80 percent. The recommended operating room temperature/relative humidity is 72° F (22.2° C)/50 percent.

## AIRFLOW REQUIREMENTS

All units shall have adequate clearances in their relative locations to allow unrestricted cooling by internally mounted blower or fans. All equipments are ambient-cooled.

External forced air, such as pressurized plenum air entering directly into the equipment, is not required.

## ELECTRICAL CHARACTERISTICS

### VOLTAGES AND KVA RATINGS

Product	Description	KVA	Circuit Breaker Requirements	
			60 Hz	50 Hz
1784-1/-2	Central Processing Unit	0.6	115v, 1 $\phi$ , 15A	230v, 1 $\phi$ , 10A
1783-1	Expansion Enclosure	0.6	115v, 1 $\phi$ , 15A	230v, 1 $\phi$ , 10A
865-2/-4	Disk Drive	0.85		
616-72/-92/-95	Magnetic Tape Unit	1.0	115v, 1 $\phi$ , 10A	115v, 1 $\phi$ , 15A
1711-4/-5	33/35 KSR Teletypewriter	0.3		
1713-4/-5	33/35 ASR Teletypewriter	0.4	115v, 1 $\phi$ , 15A	120v, 1 $\phi$ , 15A
713-10	Conversational Display	0.2	115v, 1 $\phi$ , 15A	220v, 1 $\phi$ , 15A
712-120	Terminal			
713-120	Non-Impact Printer	0.3	115v, 1 $\phi$ , 15A	220v, 1 $\phi$ , 15A
1742-30	Line Printer	1.2	115v, 1 $\phi$ , 20A	230v, 1 $\phi$ , 10A
1742-120	Line Printer	2.2	208v, 3 $\phi$ , 20A	230v, 3 $\phi$ , 20A
1729-2	Card Reader	0.35	115v, 1 $\phi$ , 10A	115v, 1 $\phi$ , 10A
1725-1	Card Punch	1.1	115v, 1 $\phi$ , 15A	127v, 1 $\phi$ , 15A
1720-1	Paper Tape Punch	0.6		
	Paper Tape Reader	0.3	115v, 2 $\phi$ , 15A	115v, 1 $\phi$ , 15A

## SAFETY REQUIREMENTS

If the site steady state voltage is not according to the characteristics mentioned in the previous paragraph, the customer must provide and install a step transformer properly sized to accommodate the load plus 20 percent for expansion and momentary surge. See the Power Conversion Transformer, Option 20399-22.

## POWER REQUIREMENTS

Voltage unbalance of the polyphase circuit is limited to 30 percent maximum deviation of any one-phase voltage from the average of the three-phase voltages.

The absolute limits of load current unbalance of polyphase systems are not established here, other than that all phases shall be loaded as uniformly as is practical.

Voltage transient (instantaneous step change) is limited to a 5 to -10 percent maximum deviation from the steady state voltage.

Voltage fluctuations are limited to 20 percent maximum deviation from the steady state voltage for periods of less than 30 milliseconds.

Voltage loss (100 percent) is limited to periods of less than 10 milliseconds.

Voltage phase displacement is limited to  $115^{\circ}$  to  $125^{\circ}$  between adjacent phases of the fundamental voltage.

The wave form is sinusoidal. The ratio of peak voltage to RMS voltage is  $1.4 \pm 0.1$  to 1.

The requirement frequency is 60 and/or 50 Hz,  $\pm 1$  percent.

All wiring shall be in accordance with applicable local and national codes.

The circuit breaker panels, circuit breakers, magnetic contactors, main power disconnects, junction boxes, transformers, and all wiring shall be furnished and installed by the customer prior to the computer site pre-installation inspection.

It should be noted that 60 or 50 Hz power must not be distributed in the same conduit or raceway as logic cables or terminator power.

## **GROUNDING SYSTEMS**

A computer system requires the installation of a protective grounding system. The customer is responsible for providing the grounding system in accordance with local electrical codes and the requirements outlined here.

## **PROTECTIVE GROUNDING SYSTEMS**

The protective grounding system must protect computer-room personnel from the potential hazard of electrical shock and protect the equipment from damage in the event of an electrical malfunction.

The grounding system must connect all of the computer system cabinets, switch boxes, frequency converters, air conditioners, and computer-related equipment to an earth ground. The conductors for the ground connections can be metallic electrical conduit or the ground wires (usually green) of the equipment power cables. Under no circumstances shall the white neutral and green ground wires of the power cables be electrically connected, except at the building service entrance.

## **EMC GROUNDING SYSTEMS**

Mini systems signal ground is normally provided by shielded interconnecting logic cables. Shielded cables should be grounded to the equipment frame during connection.

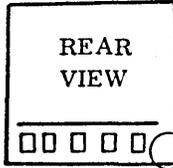
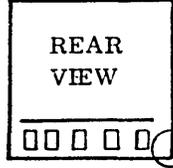
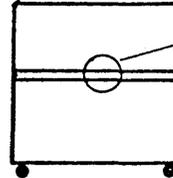
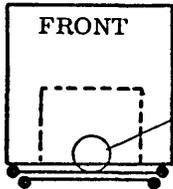
Some installations require additional techniques for controlling radio frequency interference and must be treated individually.

Installation with low signal level analog equipment, remote display or communications equipment, or in areas of high power radio frequency radiation should be discussed with a Control Data site planning representative.

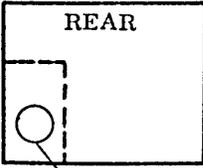
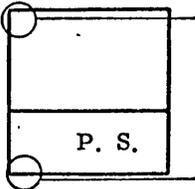
For further grounding information, refer to CDC Corporate Standard 1.30.0023, paragraphs 4.2 and 4.2.3.

# GROUNDING INFORMATION

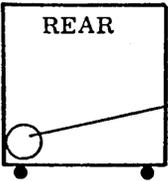
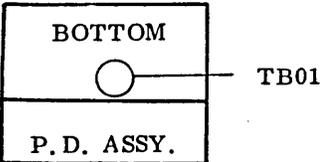
The following table indicates the type and location (when applicable) of grounding on each SYSTEM 17 equipment.

Equipment	Description	Type of Ground	Location
1784-1/-2	CPU	<ol style="list-style-type: none"> <li>Green wire, power cord</li> <li>Logic and frame ground on CPU*</li> </ol>	 <p>REAR VIEW</p> <p>Logic/Frame Grd Studs</p>
1783-1	Expansion Enclosure	<ol style="list-style-type: none"> <li>Green wire, power cord</li> <li>Logic and frame ground on expansion chassis*</li> </ol>	 <p>REAR VIEW</p> <p>Logic/Frame Grd Studs</p>
1785-3/-4	A/Q-DSA Channel Adapter	<ol style="list-style-type: none"> <li>Green wire, power cord</li> <li>Power supply, connector assembly mount to equipment cabinet</li> </ol>	N/A
856-2/-4	Cartridge Disk Drive	<ol style="list-style-type: none"> <li>Green wire, power cord</li> <li>Logic/frame ground on drive*</li> </ol>	 <p>FRONT</p> <p>Left side, inside top cover</p>
1742-30	Line Printer	<ol style="list-style-type: none"> <li>Green wire, power cord</li> <li>Logic/frame ground on back of printer*</li> </ol>	 <p>FRONT</p> <p>Back of pedestal opening when front door is open.</p> <p>Must be routed over inside pedestal cover.</p>

\*Logic and frame require a solid system ground, i.e., a grid or star ground.

Equipment	Description	Type of Ground	Location
1742-120	Line Printer	<ol style="list-style-type: none"> <li>1. Green wire, power cord</li> <li>2. Logic/frame ground on rear of printer*</li> </ol>	 <p>Ground located adjacent to primary power input. Left rear door must be opened for access.</p>
616-73/-43/-93	Magnetic Tape Transports mounted in 1787-3/-4 enclosures	<ol style="list-style-type: none"> <li>1. Green wire, power cord</li> <li>2. Frame ground from power supply to MTT chassis</li> <li>3. Frame ground via connection of MTT to enclosure mounting rail</li> <li>4. Route ground from cabinet enclosure TB01 (Gnd) to system ground.*</li> </ol>	<ul style="list-style-type: none"> <li>• TB01 enclosure ground is located on base of enclosure (1787-3/-4) in front of the power distribution assembly.</li> <li>• E1 ground lug on MTT power supply to ground lug on upper right corner of MTT.</li> </ul>  <p>Grd. point to MTT</p> <p>E1 lug on bottom of power supply assy.</p>
1729-3	Card Reader	Green wire, power cord	N/A
1711-4/-5	33/35 KSR TTY	Green wire, power cord	N/A
1713-4/-5	33/35 ASR TTY	Green wire, power cord	N/A
713-10	CDT	Green wire, power cord	N/A
713-120	Non-Impact Printer	Green wire, power cord	N/A
1743-1/-2	Sync/Async Distribution Panel	Mounting to cabinet rail	N/A
1720-1	Paper Tape Punch	<ol style="list-style-type: none"> <li>1. Green wire, power cord</li> <li>2. Frame mounting to cabinet rail</li> </ol>	N/A
	Paper Tape Reader	<ol style="list-style-type: none"> <li>1. Green wire, power cord.</li> <li>2. Frame mounting to cabinet rail</li> </ol>	N/A

\*Logic and frame require a solid system ground, i.e., a grid or star ground.

Equipment	Description	Type of Ground	Location
1725-1	Card Punch	1. Green wire, power cord 2. Logic/frame ground inside rear cover*	 <p>REAR</p> <p>Remove rear cover for access to Grd.</p>
1787-3	Pedestal Cabinet	1. Green wire, power cord 2. Logic/frame ground on base in front of power distribution assembly*	 <p>BOTTOM</p> <p>TB01</p> <p>P. D. ASSY.</p>
1787-4	Equipment Cabinet	Same as 1787-3	Same as 1787-3
1787-6	Desk Console	Same as 1787-3	Same as 1787-3
1787-5	Equipment Table	No grounding provisions	N/A
10299-17	Table/Desk-Top Enclosure	Mounting connection to table/desk/pedestal top	N/A
10299-18	Under-Table/Desk Enclosure	Mounting connection to table/desk	N/A
10343-1	±12 vdc Power Supply option for 1743-1/-2	1. Green wire, power cord 2. Mounting to cabinet rail	N/A

\*Logic and frame require a solid system ground, i. e., a grid or star ground.

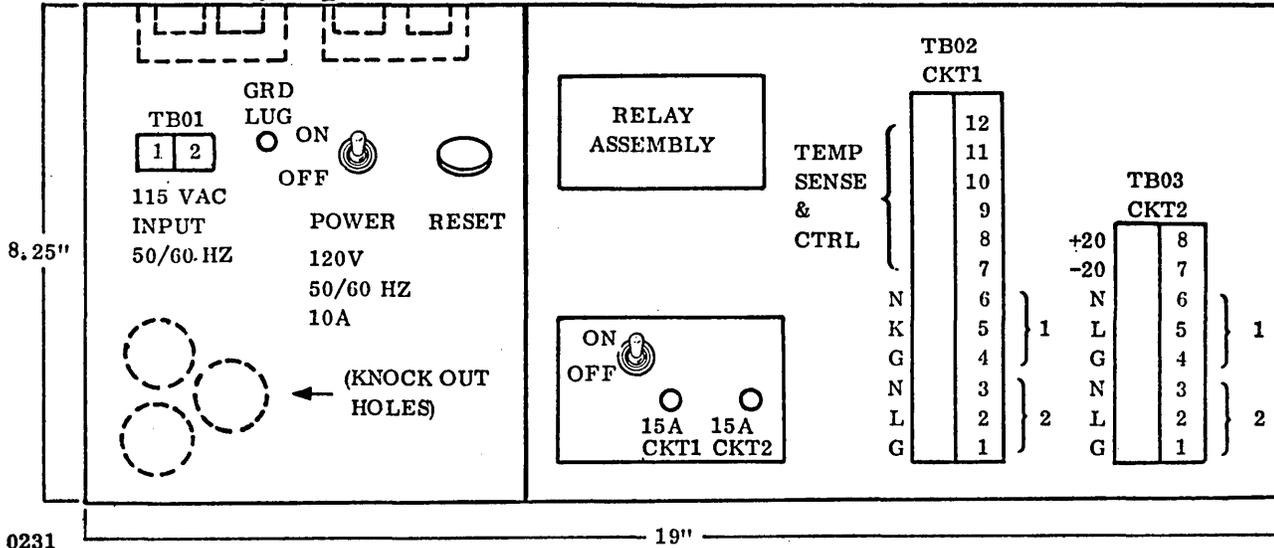
## CONVENIENCE OUTLETS

One or more convenience outlets should be located in the computer room. The convenience outlets may be located in the perimeter walls and/or in raised floor panels. The receptacles should be of the single-phase grounded type and connected to the same power source that supplies 60 or 50 Hz power to the computer. In some cases, electrical receptacles will be located within the equipment cabinets that contain a power distribution assembly.

# POWER DISTRIBUTION ASSEMBLY

The power distribution assembly is located within the 1787-3/-4/-6 enclosure.

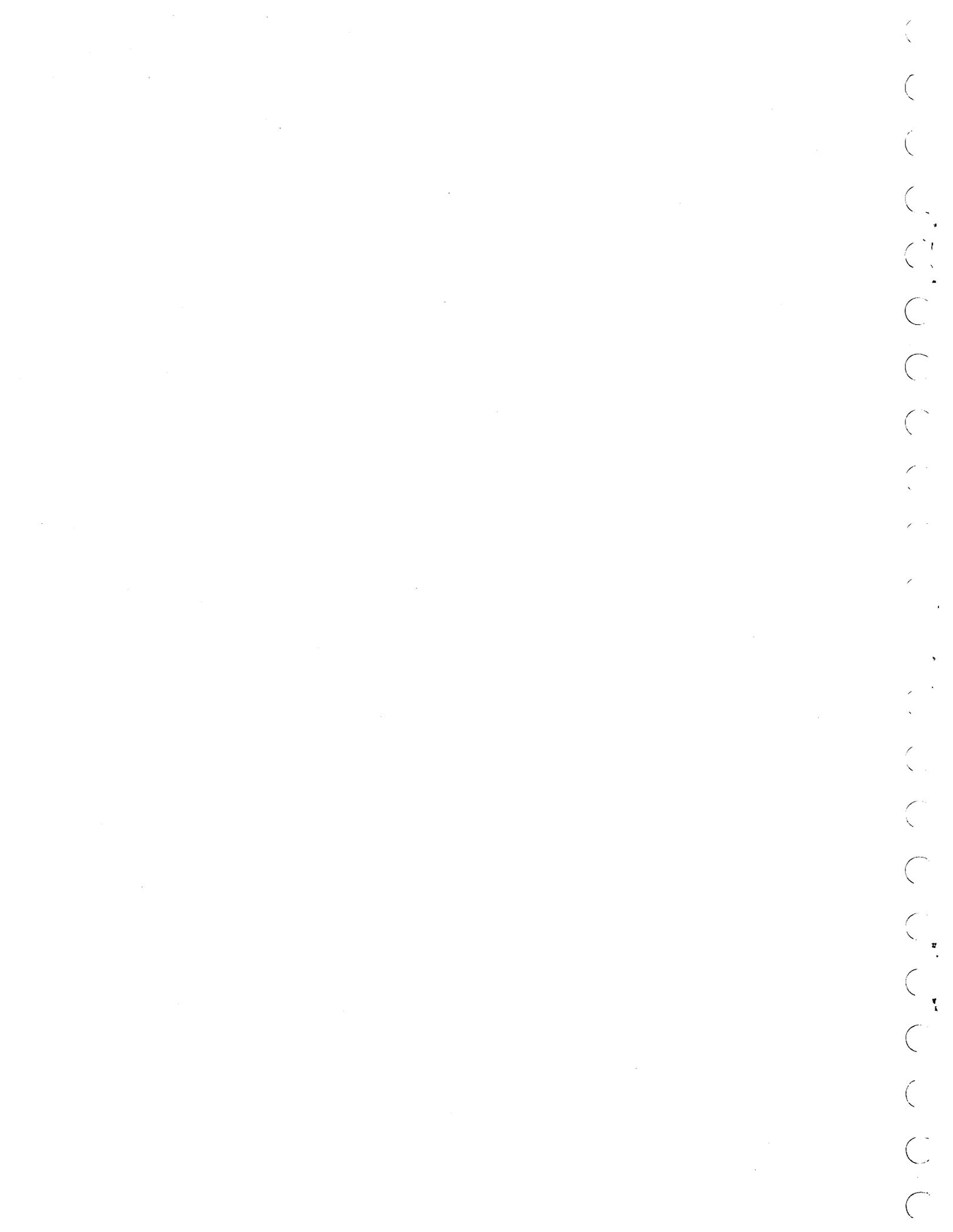
TWO DUPLEX OUTLETS FACE FRONT OF CABINET, PROVIDE TOTAL OF 10A SERVICE.



0231

Two 15 amp circuit breakers, CKT2 and CKT2, provide power to TB02 and TB03 respectively. These TB assemblies can provide power for up to four devices (two circuits per breaker) providing the total current drawn does not exceed the circuit breaker rating.





# FLOOR PLAN LAYOUT

9

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The following pages should be used to assist the customer in his facility planning. Each sketch should provide auxiliary data such as maintenance or access clearance, floor cutouts where applicable, location of power connections, door swing, chassis slideouts, casters, and leveling pad locations, if any.

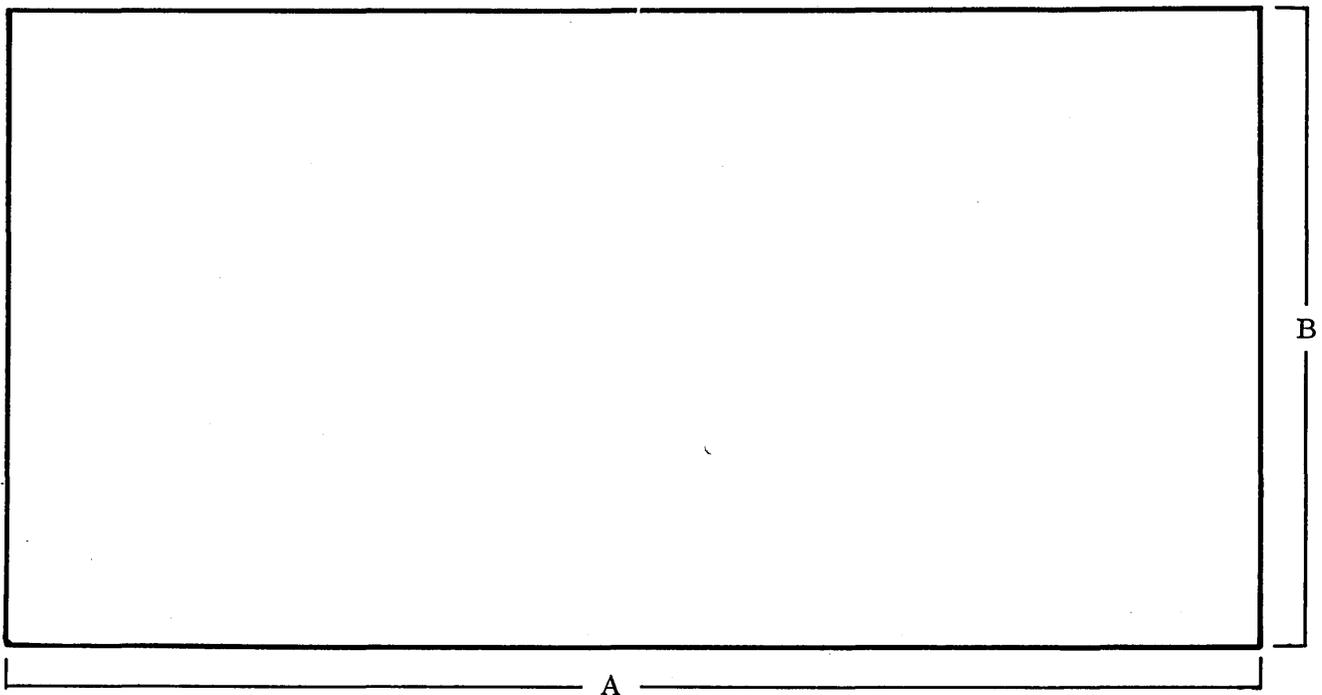
To further assist the customer in preparing his facility planning drawings, Control Data offers self-adhesive transparencies of all equipments that are part of or associated with SYSTEM 17 computer systems. These acetate transparencies are called templates and are drawn to various scales (1/2:1 inch, 1/4:1 inch, 1:25, and 1:50). They are available on the following devices:

- Equipment cabinet
- 1729-3 Card Reader
- Teletypewriter
- Conversational display terminal
- Non-impact printer
- 856 Cartridge Disk Drive
- 1725 Card Punch
- Equipment table
- Desk console
- 1742-30 Line Printer
- 1742-120 Line Printer
- 10299-22 Power Conversion Transformer
- 10299-23 Utility Writing Shelf

If a raised floor is not being used for this particular system, pay particular attention to the routing of cables between the different equipments. It is recommended that, if a raised floor is not used, a cable trough be provided for protection of the power and data cables. Power and data cables should not be run adjacent to each other in the same trough.

When considering distances between equipments, keep in mind the vertical distance required to route the cable from the equipment to the cable trough, floor, or floor under the raised floor.

## ROOM MEASUREMENT



A = \_\_\_\_\_ inches/cm

B = \_\_\_\_\_ inches/cm

Height = \_\_\_\_\_ inches/cm

Indicate the location of:

1. Doors
2. Windows

3. Ducting and/or shaft(s) running along walls (vertical only).
4. Pillars (if any)
5. Obstructions of any nature affecting the location of the equipment in the room.
6. The planned equipment configuration, including all desks, bookcases, and/or worktables. This information is important for the department supplying the logic cables.

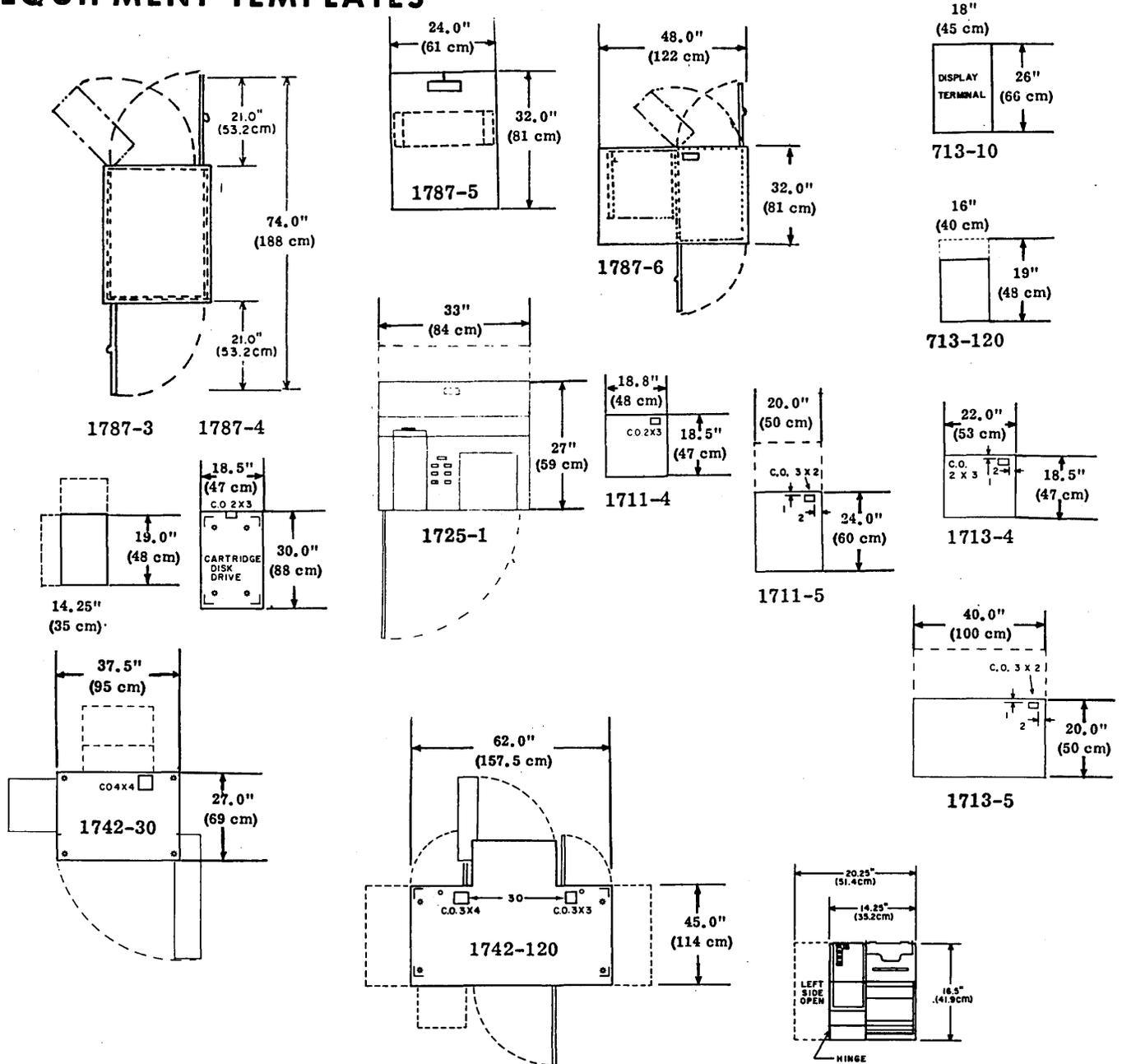
In case the room drawing shown above cannot be used to provide the necessary information, please use page 9-4 to sketch the actual situation. Show the relative location of all equipment involved, keeping in mind that certain cables are available only in specific lengths.

Where will the cables run ?

- |  |   |
|--|---|
| <input type="checkbox"/> Under the floor | <input type="checkbox"/> Along the wall |
| <input type="checkbox"/> On the floor    | <input type="checkbox"/> Overhead       |

Measurements are shown in (inches) (centimeters).

# EQUIPMENT TEMPLATES



These drawings are not all drawn to the same scale. Templates for the SYSTEM 17 equipments are available from the Control Data Engineering and Architectural Services Division.



COMMENT SHEET

MANUAL TITLE CONTROL DATA® System 17 Site Planning Kit

PUBLICATION NO. 96768500 REVISION A

FROM NAME: \_\_\_\_\_

BUSINESS  
ADDRESS: \_\_\_\_\_

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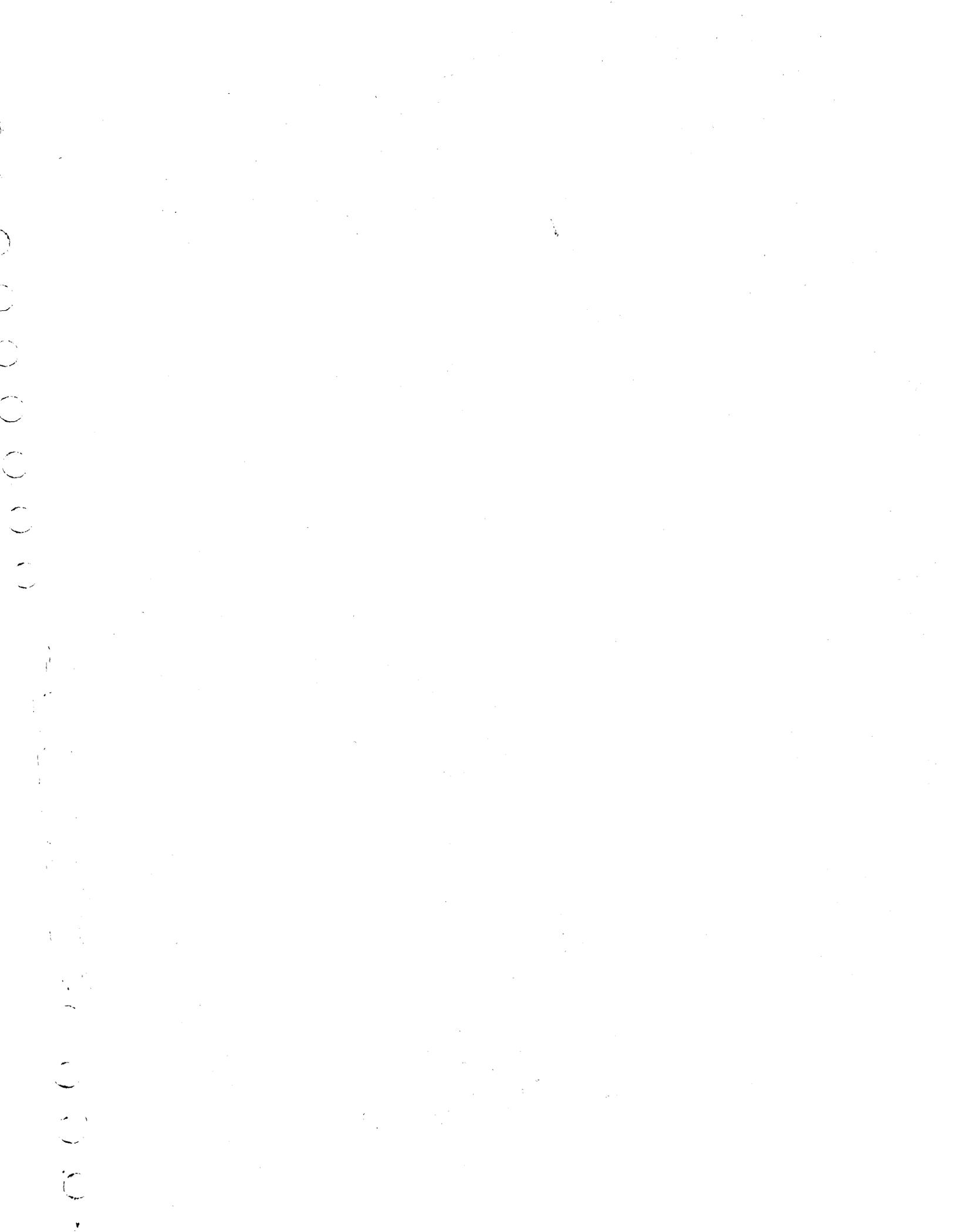
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