

IBM[®]

Installation Manual—Physical Planning

IBM 1401 Data Processing System

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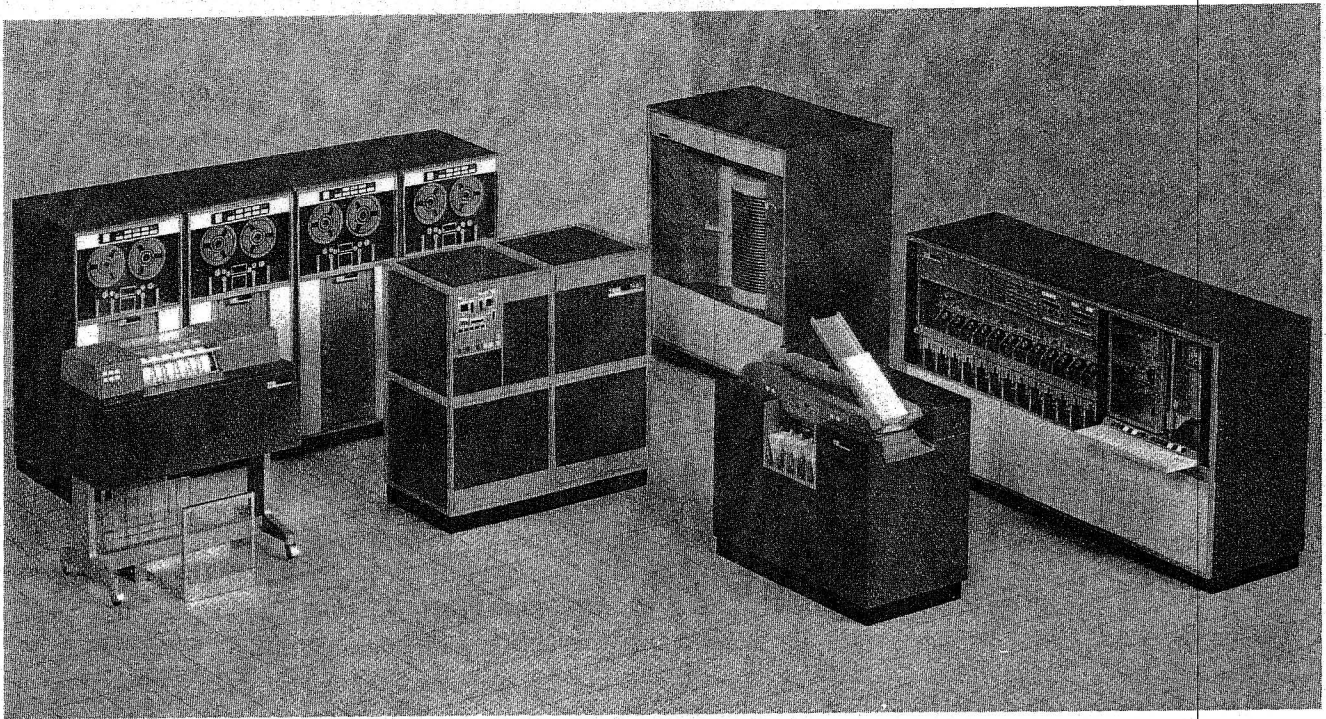


Figure 1. IBM 1401 Data Processing System

Physical Planning

IBM 1401 Data Processing System

An efficiently operated data processing system depends largely on careful planning and preparation prior to actual installation of the data processing equipment. The purpose of the installation manual is to assist IBM customers in the many aspects of preparation required during the period preceding delivery of new equipment.

This manual contains pertinent, detailed information concerning the IBM 1401 Data Processing System. Included are dimensions, weights, cable locations and available lengths, service clearances, and other necessary physical information for each unit of the system. Electrical and environmental requirements for the entire system and, where necessary, for specific units of the system are also included.

IBM sales representatives, customer engineers, and physical planning engineers are available for consultation and assistance in planning a data processing site.

IBM publishes a *General Information Manual, Physical Planning* (Form F24-1052) that contains information on the planning and preparation of IBM data processing installations. The general information manual should be used in conjunction with this manual. Physical planning templates (Form X24-6482), used for floor planning, and a cable order form (Form 120-6485) are also available.

Units of the IBM 1401 System

The IBM 1401 Data Processing System consists of a number of configurations of the following units:

- IBM 1401 Processing Unit
(Models A, B, C, D, E, and F)
- IBM 1402 Card Read-Punch (Model 1)
- IBM 1403 Printer (Models 1 and 2)
- IBM 1404 Printer (Model 2)
- IBM 1406 Storage Unit (Models 1, 2, and 3)
- IBM 729 Magnetic Tape Unit (Models II, IV, and V)
- IBM 7330 Magnetic Tape Unit
- IBM 1405 Disk Storage Unit (Models 1 and 2)
(Compressor required with 1405)
- IBM 1407 Console Inquiry Station
- IBM 1412 Magnetic Character Reader (Model 1)
- IBM 1419 Magnetic Character Reader (Model 1)
(Accumulator unit available with 1412 and 1419)
- IBM 1418 Optical Character Reader
(Models 1 and 2)
- IBM 1009 Data Transmission Unit
- IBM 1011 Paper Tape Reader

Figure 1 shows a typical IBM 1401 system.

The IBM 1401 Standard Modular System

The Standard Modular System (SMS) is used in the design and packaging of electronic components and units of the 1401 system.

SMS is incorporated in the IBM 1401 Processing Unit in the form of a standard module, 29 inches wide, 30 $\frac{1}{2}$ inches deep and 60 inches high. Standard solid-state, printed-wiring cards are used for assembling electronic circuits. The SMS cards are plugged into vertical-swinging gates that are a part of the standard module.

Other units of the 1401 system (1406, 7330, and 1009) use a standard SMS *cube*, 29 inches wide, 30 $\frac{1}{2}$ inches deep and 27 inches high. All units of the system utilize SMS cards for basic electronic circuits. The cards are mounted on fixed panels, vertical-swinging gates, or sliding gates, depending on the technique that is best for each application.

The entire 1401 system uses modular design. This allows a large number of configurations of the various units of the system. Thus, the individual requirements of each customer can be met with a specific configuration of the system.

Inter-Unit and Power Cables

IBM provides the necessary inter-unit cables and power cords for proper connection of the units of the 1401 system. Figure 19 is a diagram of these cables. Figure 20 lists other pertinent cable information.

The 1401 system usually is located on a raised floor. Although a raised floor is not required, it is recommended. Inter-unit cables and power cords enter the units of the system through holes cut in the raised floor at designated locations (Figures 2-17). Some cables are permanently attached at the units, while others are attached by pluggable connectors (Figure 19).

The available cable lengths specified in Figure 20 are measured over the route followed between the centers of the raised-floor cutouts of the units the cables connect. When a raised floor is used, two times the height of the raised floor above the permanent floor should be added to the required cable length. IBM makes allowance for the portion of each cable that is above the raised floor and behind unit covers.

Electrical Requirements

The electrical requirements for any given configuration of the IBM 1401 system, depending on the auxiliary or peripheral equipment included in the system, may include one or more of these as specified in Figure 21:

1. 208 or 230 volts ($\pm 10\%$)
Single-phase (2-wire system plus equipment ground)
3-phase (3-wire system plus equipment ground)
Magnetic-tape systems require +10%, -8% voltage tolerance.
1412 and 1419 require equipment ground for proper operation, as well as safety.
2. 115 volts ($\pm 10\%$)
Single phase (2-wire system plus equipment ground)
3. Phase rotation — counterclockwise, facing power receptacle.
4. 60-cycle ($\pm \frac{1}{2}$ cycle)
5. kva—depends on system configuration (Figure 21).
6. Service amperes — depends on system configuration (Figure 21).

Power to the units of the 1401 system is provided by the power cords shown in Figure 19. The lengths of the power cords are given in Figure 20. Figure 21 lists the information needed to determine power requirements (voltage, phases, kva, and service amperes) for any configuration of the 1401 system. The customer provides power receptacles to match the power cord plugs specified for units that are separately powered.

Environmental Requirements

The IBM 1401 system has these environmental requirements:

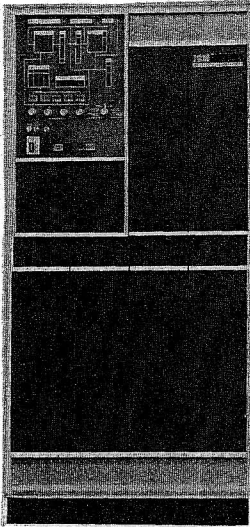
1. Power-on (system in operation)
Temperature: 60-90°F
Relative humidity: 20-80%
Air filtration: 20% minimum by National Bureau of Standards discoloration test
When the IBM 1412 or 1419 is used with the 1401 system, special environmental requirements apply: 65-80°F, 20-65% RH
2. Power-off (extended non-operational period)
Temperature: 50-110°F
Relative humidity: 0-80%

Figure 22 lists the heat dissipation and air-flow for each unit of the system. These are needed to determine air conditioning requirements.

IBM Customer Engineering Requirements

Proper servicing of the IBM 1401 system by IBM customer engineers requires adequate service clearance around each unit of the system. These service clearances are specified in Figures 2-18.

Space should be provided near the operating area for customer engineers to store test equipment and spare parts, and to perform off-line maintenance of units of the 1401 system. A minimum area of 70 square feet (7' x 10') is required. It should be equipped with one 208-volt (or 230-volt), 3-phase, 20-ampere power receptacle (Pass and Seymour type 7250 or equivalent) for operation of tape-unit testing equipment. Also at least two 115-volt, single-phase, 15 ampere receptacles (Pass and Seymour type 5262 or equivalent) should be provided.



NOTES

1. Dimensions
29" Wide, 30 $\frac{5}{8}$ " Deep, 60" High
Early models were 58" high.
2. Maximum Weight 1013 lbs.
3. Service Clearances
Each side 30"
Front and rear 42"
4. Cables to 1402, 1403, and 1406 are permanently attached to 1401.
5. Raised-floor cutout applies to units with machine serial numbers 1401-20890 and higher. See Figure 4 for earlier machines.

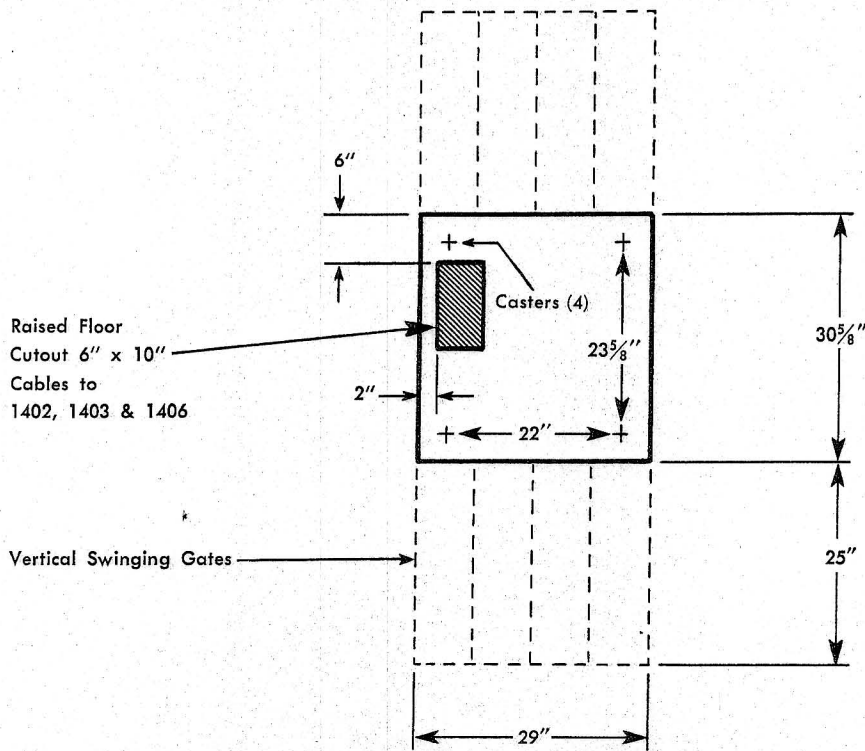


Figure 2. IBM 1401 Processing Unit, Model A

NOTES

1. Dimensions
58" Wide, 30 $\frac{5}{8}$ " Deep, 60" High
Early models were 58" high.
2. Maximum Weight
Model B — 1840 lbs.
Models C, E, F — 2023 lbs.
Model D — 2170 lbs.
3. Service Clearances
Each side 30"
Front and rear 42"
4. Cables to 1402, 1403, 1404, and 1406 are permanently attached to 1401. Cables to 729's, 7330's, 1405, 1407 and I/O attachment are attached to 1401 by pluggable connectors. I/O attachment cable allows any one of these units to be connected to the 1401: 1009, 1011, 1412, 1418, and 1419.
5. Raised-floor cutouts apply to units with machine serial numbers 1401-20890 and higher. See Figure 4 for earlier machines.

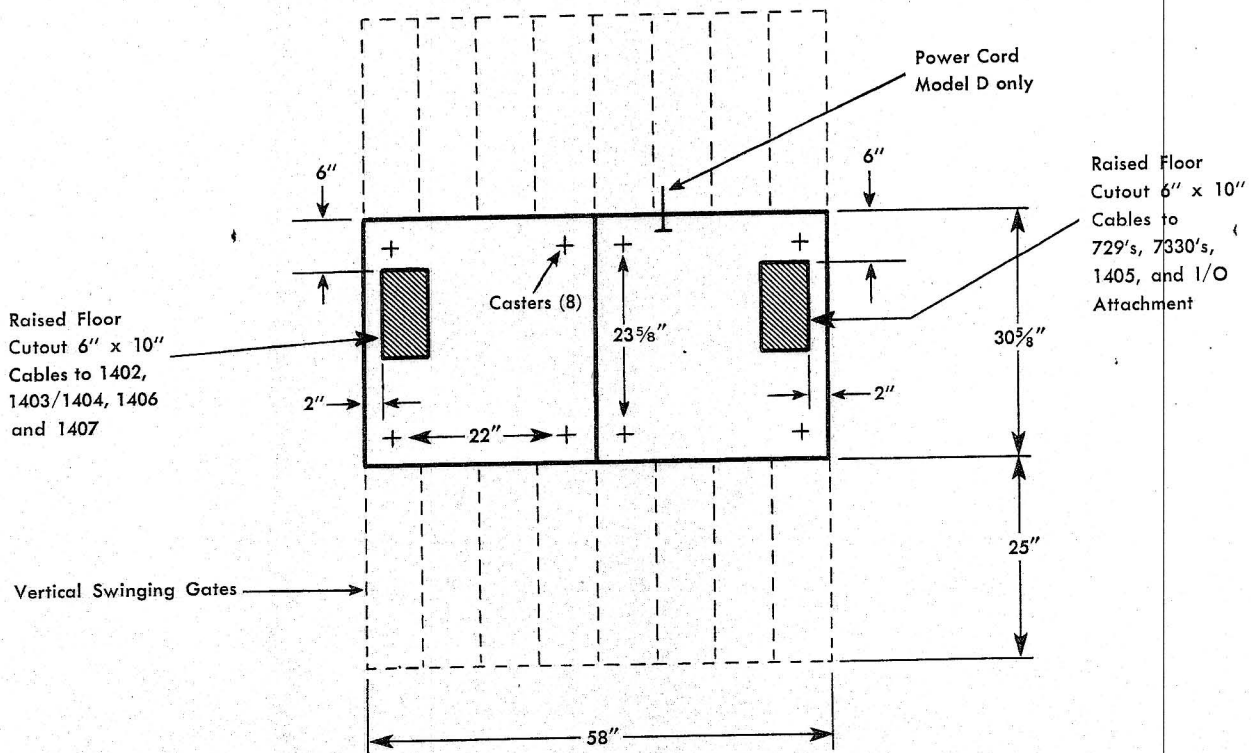
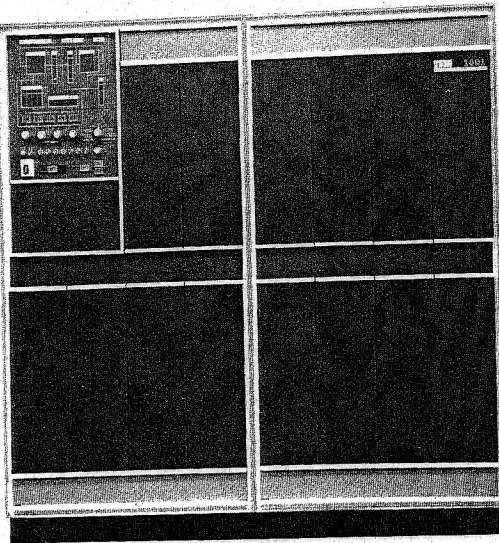


Figure 3. IBM 1401 Processing Unit, Models B, C, D, E, and F

NOTES

1. 1401's prior to machine serial number 1401-20890 had cables exiting outside periphery of unit. For these units, raised-floor cable-cutout locations should be as shown.
2. All other dimensions and locations are the same as for current machines (see Figures 2 and 3).

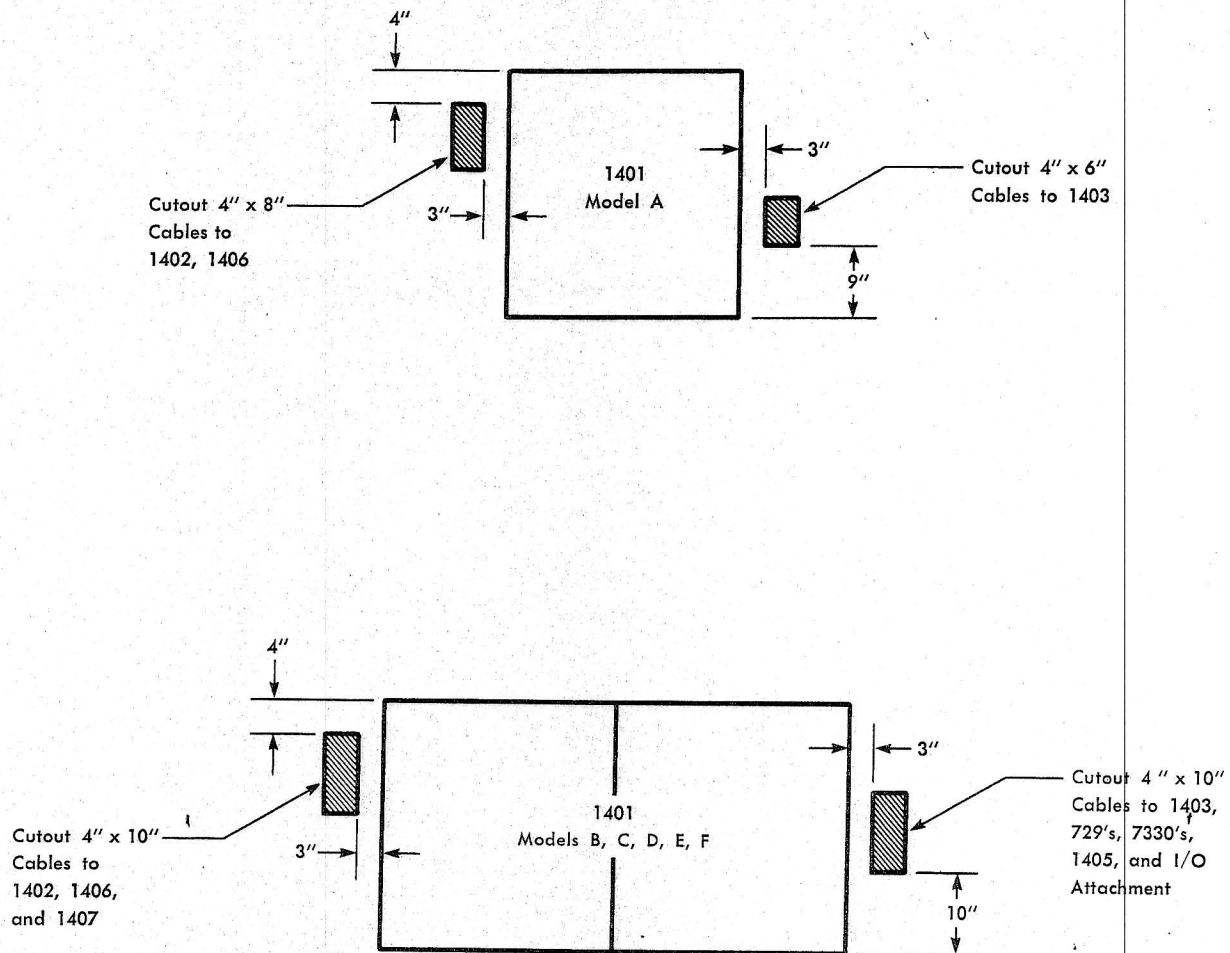
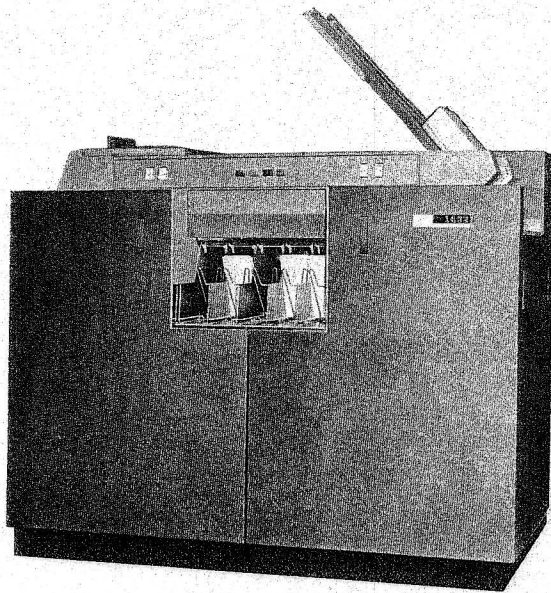


Figure 4. Raised-Floor Cable-Cutout Locations for IBM 1401 Processing Units Prior to Machine Serial Number 1401-20890



NOTES

1. Dimensions
57½" Wide, 29¾" Deep, 45¼" High
(plus Read File Feed 14½")
2. Weight 1300 lbs.
3. Service Clearances
36" all sides
4. Cables from 1401 are attached to 1402 by pluggable connectors. Power cord is permanently attached to 1402.

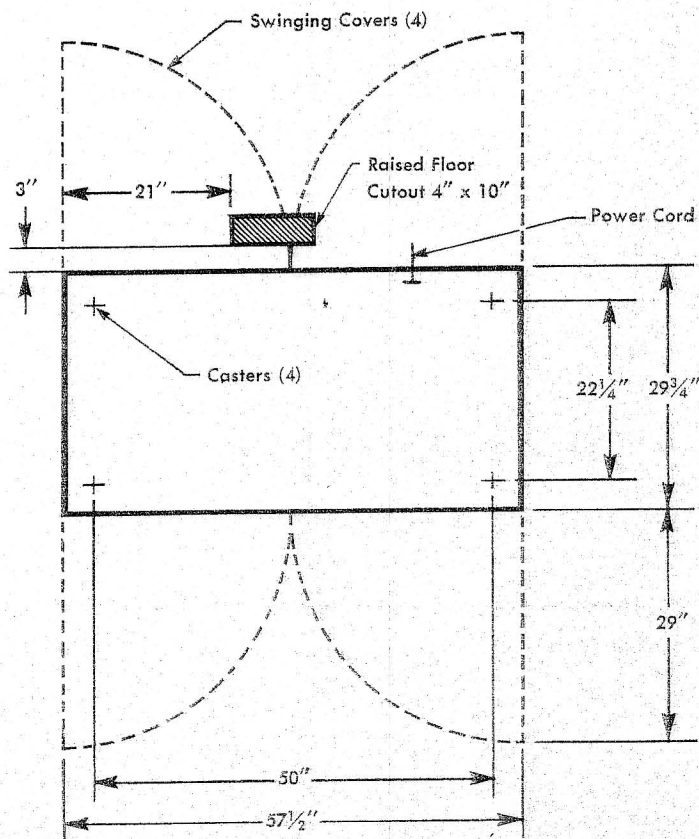
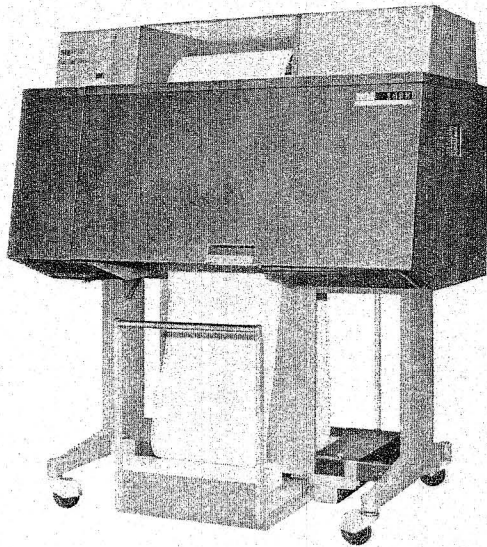


Figure 5. IBM 1402 Card Read-Punch, Model 1

NOTES



1. Dimensions
 1403 — 47 $\frac{3}{4}$ " Wide, 28 $\frac{1}{2}$ " Deep,
 53 $\frac{1}{4}$ " High
 Front Forms Cart 18 $\frac{1}{4}$ " x 25" x 21 $\frac{1}{4}$ "
 Rear Forms Cart
 24 $\frac{1}{2}$ " x 23 $\frac{3}{4}$ " x 21 $\frac{1}{4}$ "
 Forms Carts project maximum of
 11" beyond front and rear of 1403.
2. Weight 750 lbs.
3. Service Clearances
 Each side 30"
 Front and rear 36"
4. Cables from 1401 are attached to
 1403 by pluggable connectors.
5. System can include either 1403 Printer
 or 1404 Printer (see Figure 7).

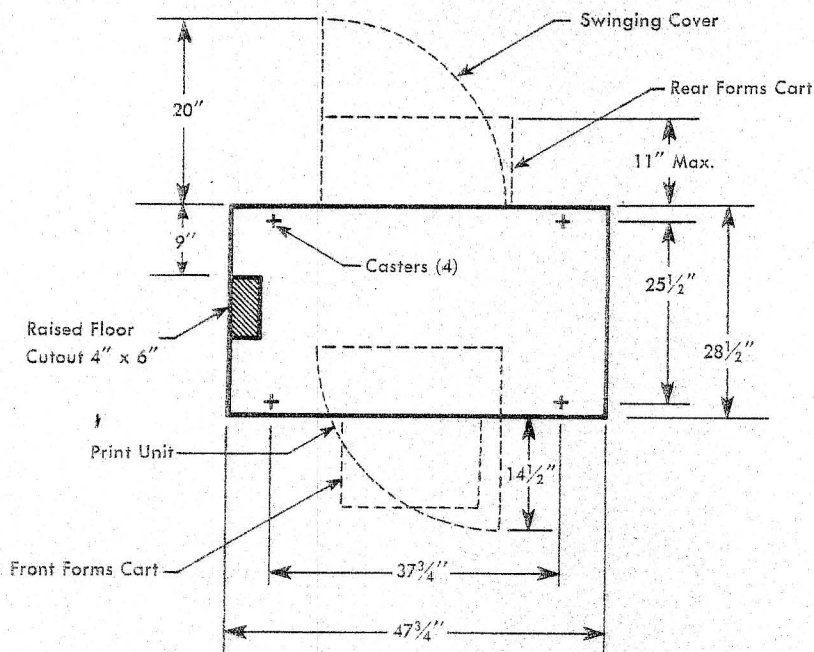
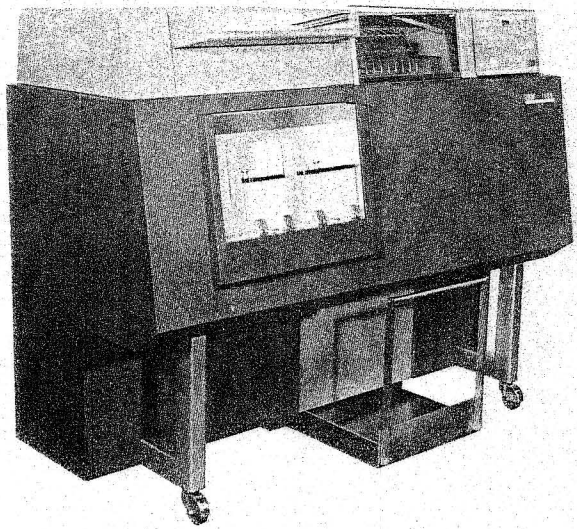


Figure 6. IBM 1403 Printer, Models 1 and 2



NOTES

1. Dimensions
 1404 — $67\frac{1}{8}$ " Wide, $31\frac{1}{4}$ " Deep,
 $53\frac{1}{2}$ " High
 Front Forms Cart $18\frac{1}{4}$ " x 25 " x $21\frac{1}{4}$ "
 Rear Forms Cart $24\frac{1}{2}$ " x $23\frac{3}{4}$ " x $21\frac{1}{4}$ "
 Maximum Forms Cart Projection
 Front 5 ", Rear 9 "
2. Weight 1600 lbs.
3. Service Clearances
 Right 48 ", Left 42 ",
 Front and Rear 36 "
4. Cables from 1401 are attached to
 1404 by pluggable connectors.
5. System can include either 1404 Printer
 or 1403 Printer (See Figure 6).

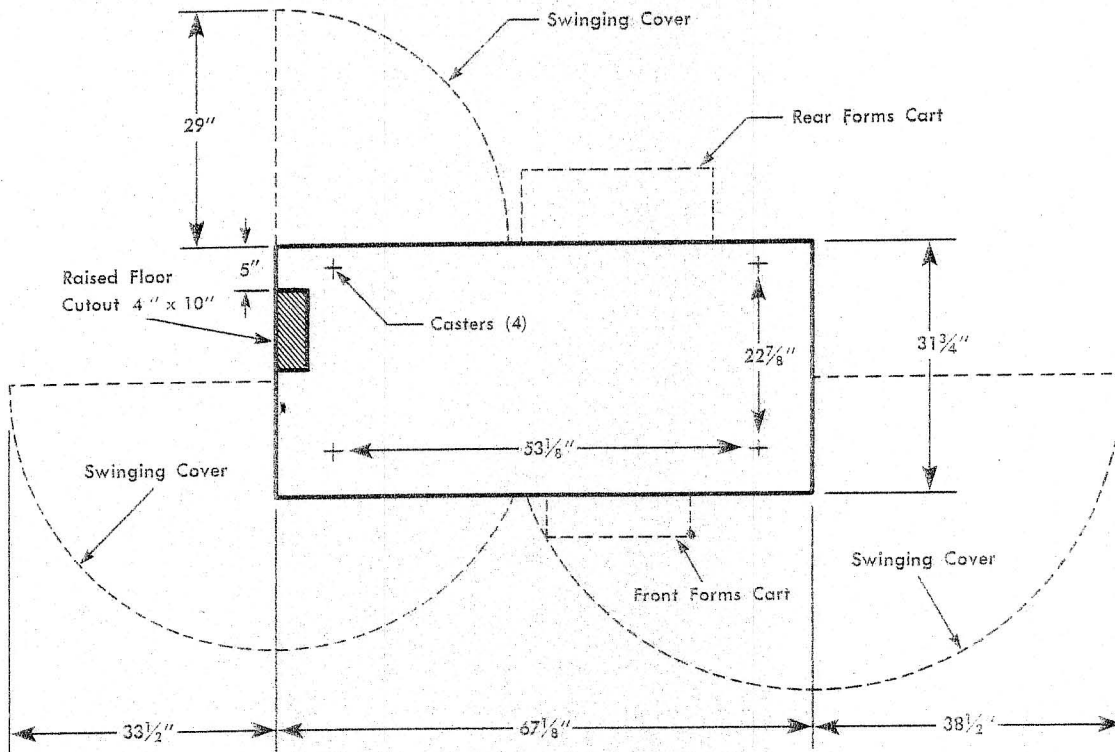
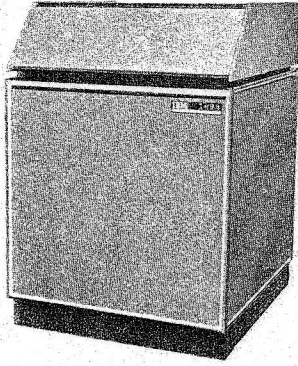


Figure 7. IBM 1404 Printer, Model 2

NOTES



1. Dimensions
29" Wide, 30⁵/₈" Deep, 39⁵/₈" High
2. Maximum Weight 350 lbs.
3. Service Clearances
Each side 30"
Front and rear 42"
4. Cables from 1401 are attached to 1406 by pluggable connectors.

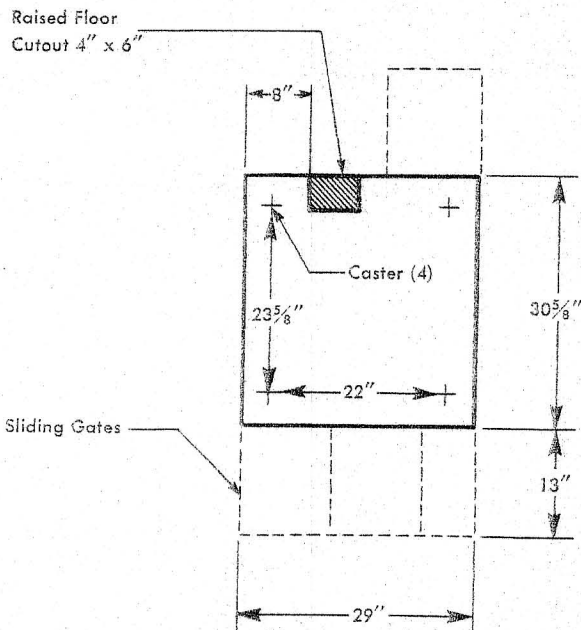


Figure 8. IBM 1406 Storage Unit, Models 1, 2, and 3

NOTES

1. Dimensions
29 $\frac{1}{8}$ " Wide, 33 $\frac{3}{8}$ " Deep, 69 $\frac{1}{4}$ " High
2. Weight 1160 lbs.
3. Service Clearances
Each side 2"
Front and rear 30"
Side clearance allows a 729 to be moved from a line of 729's.
4. Cables from 1401 and to next 729 are attached to 729 by pluggable connectors.
5. System can include a maximum of 6 tape units, either 729 II, 729 IV, 729 V, or 7330. Tape Intermix feature is required when more than one type of tape unit is used.

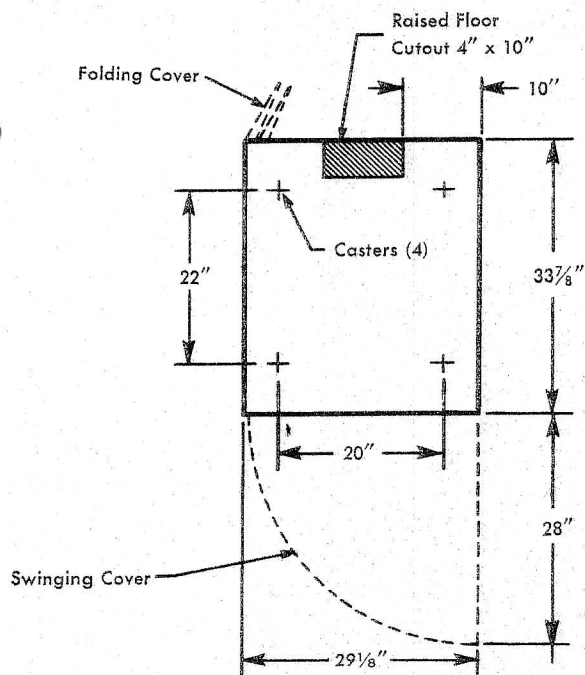
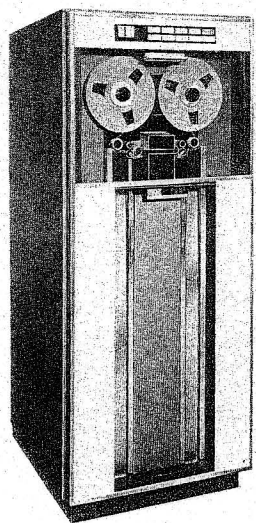
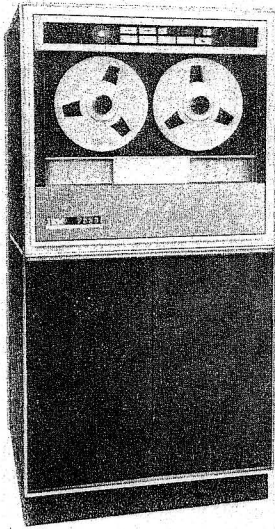


Figure 9. IBM 729 Magnetic Tape Unit, Models II, IV, and V

NOTES



1. Dimensions
29" Wide, 30 $\frac{3}{4}$ " Deep, 58" High
2. Weight 637 lbs.
3. Service Clearances
Each side 6"
Front 44", rear 40"
4. Cables from 1401 and to next 7330 are attached to 7330 by pluggable connectors.
5. When a raised floor is not used, cables may enter and leave 7330 through cutout in lower rear section at each side of unit.
6. System can include a maximum of 6 tape units, either 729 II, 729 IV, 729 V, or 7330. Tape Intermix feature is required when more than one type of tape unit is used.

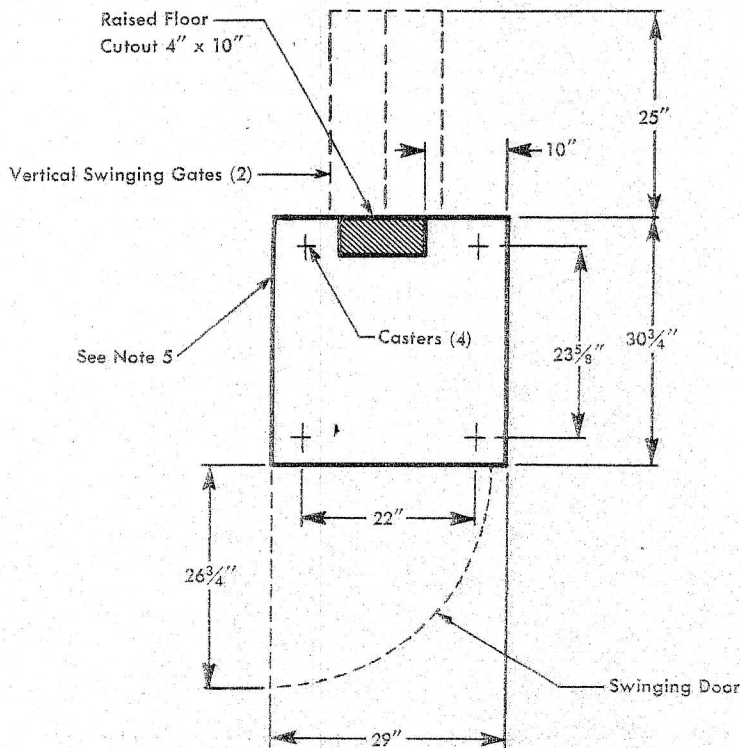
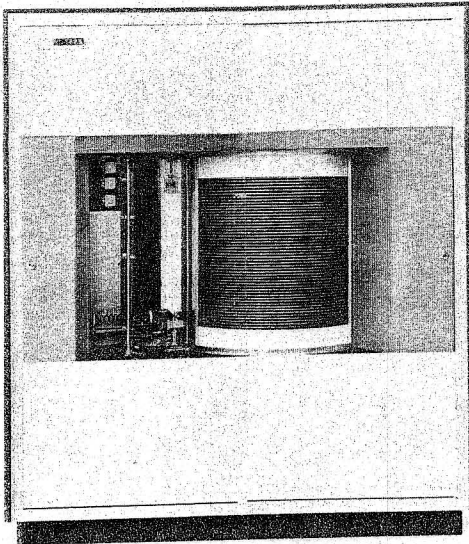


Figure 10. IBM 7330 Magnetic Tape Unit

NOTES



1. Dimensions

1405 — 60 $\frac{3}{8}$ " Wide, 30 $\frac{3}{4}$ " Deep,
70" High

Compressor — 39 $\frac{3}{4}$ " x 32 $\frac{7}{8}$ " x 29 $\frac{1}{4}$ "

2. Maximum Weight

1405 — 2115 lbs.

Compressor — 700 lbs.

3. Service Clearances

1405 — Each side 48", front 30",
rear 42"

2' Clearance above the 1405 is re-
quired for removal of disk shaft.

Compressor — 30" all sides

4. Signal cable from 1401 is attached to
1405 by pluggable connector.

5. Power to 1405 is from service recep-
tacle. Two cables for power to comp-
ressor from 1405. Air hose from
compressor to 1405.

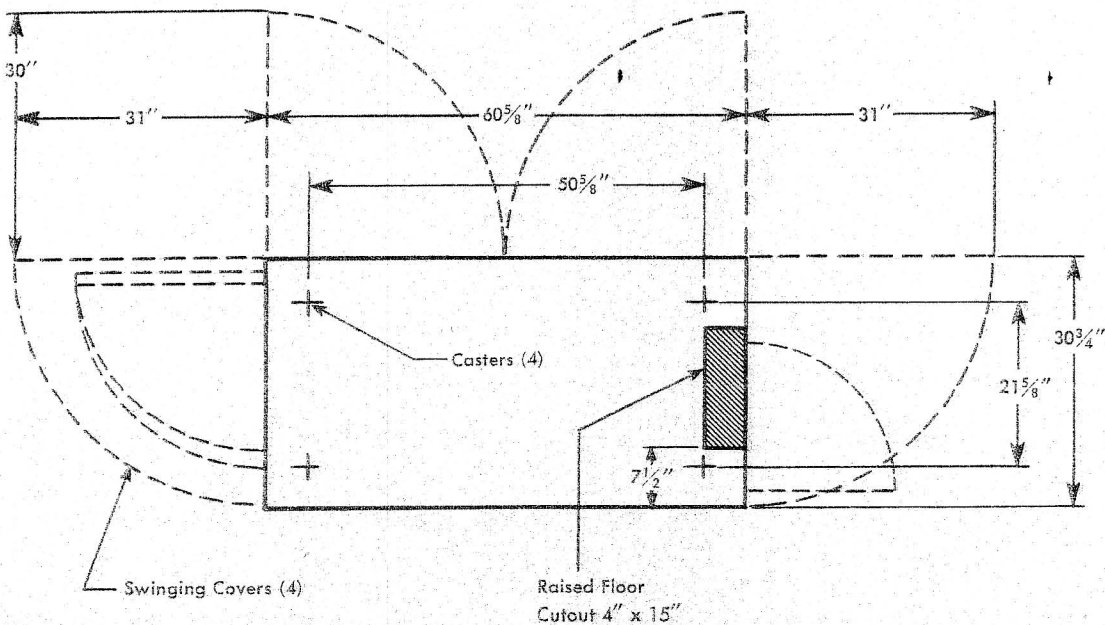
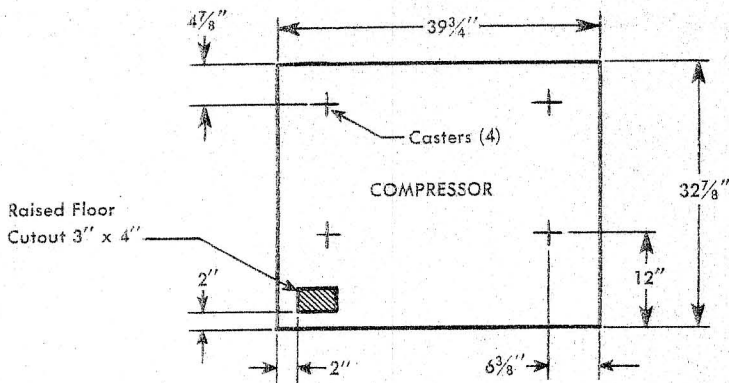
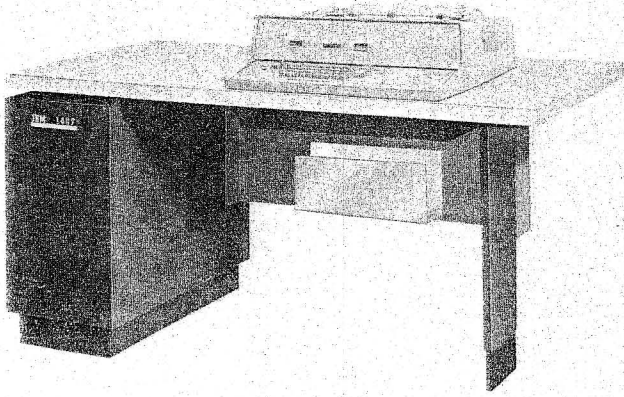


Figure 11. IBM 1405 Disk Storage Unit, Models 1 and 2



NOTES

1. Dimensions
60" Wide, 29" Deep, 29" High
(Plus 10" to top of typewriter)
2. Maximum Weight 300 lbs.
3. Service Clearances
30" all sides
4. Cable from 1401 is permanently attached to 1407.

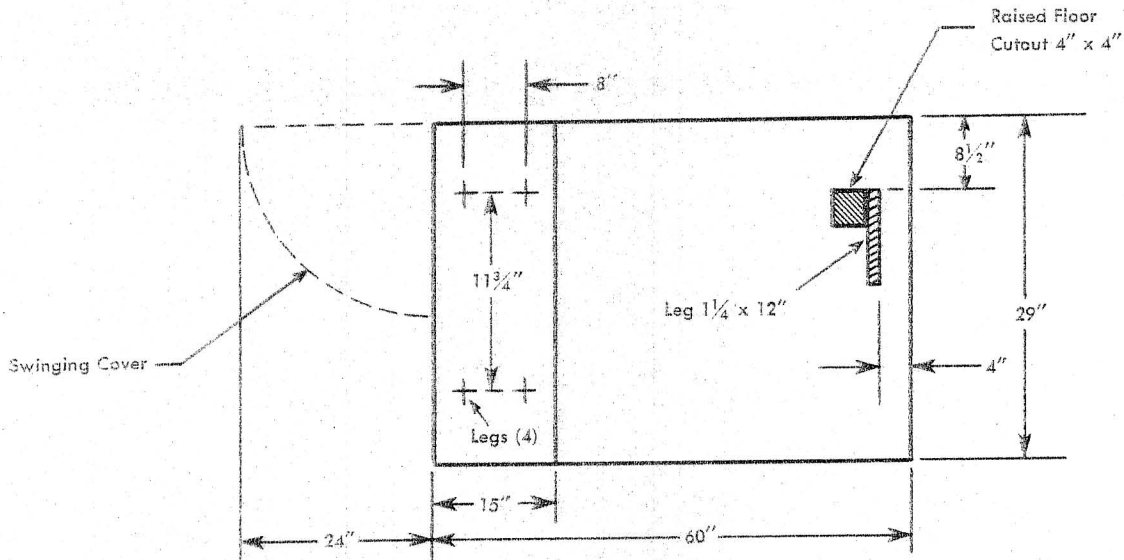
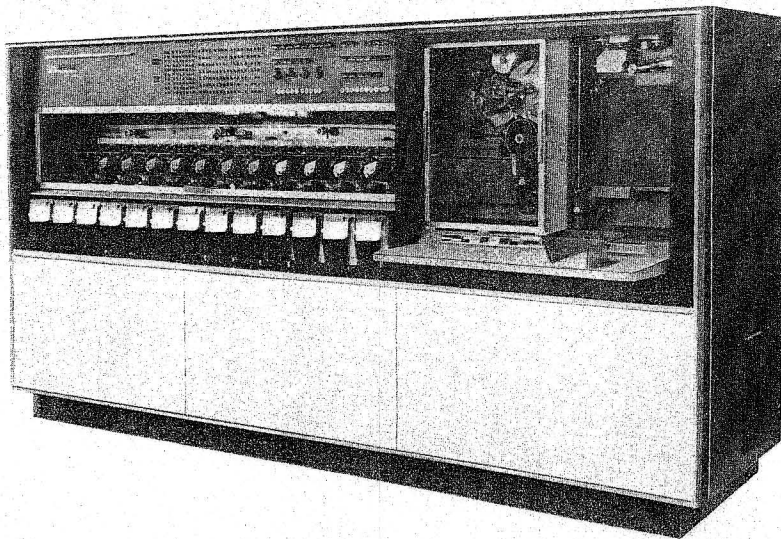
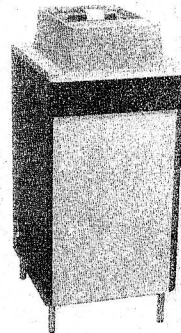
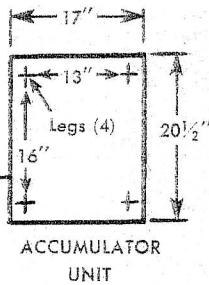


Figure 12. IBM 1407 Console Inquiry Station



NOTES

1. Dimensions
 1412 - 112" wide, 33" Deep (plus 8 1/4" for reading board), 60 1/2" High.
 Shipped in two sections, 40" and 72" Wide.
 Accumulator unit -
 17" x 20 1/2" x 38 1/2"
2. Maximum Weight
 1412 - 2400 lbs.
 Accumulator unit - 105 lbs.
3. Service Clearances
 1412 - left 36", right 36", front 42", rear 48"
 Accumulator unit - none required
4. I/O attachment cable from 1401 is attached to 1412 by pluggable connector. Cable from 1412 to accumulator unit is attached to 1412 by pluggable connector and is permanently attached to accumulator unit.
5. Power to 1412 is provided from service receptacle.



Cable to 1412
 Cutout Not
 Required

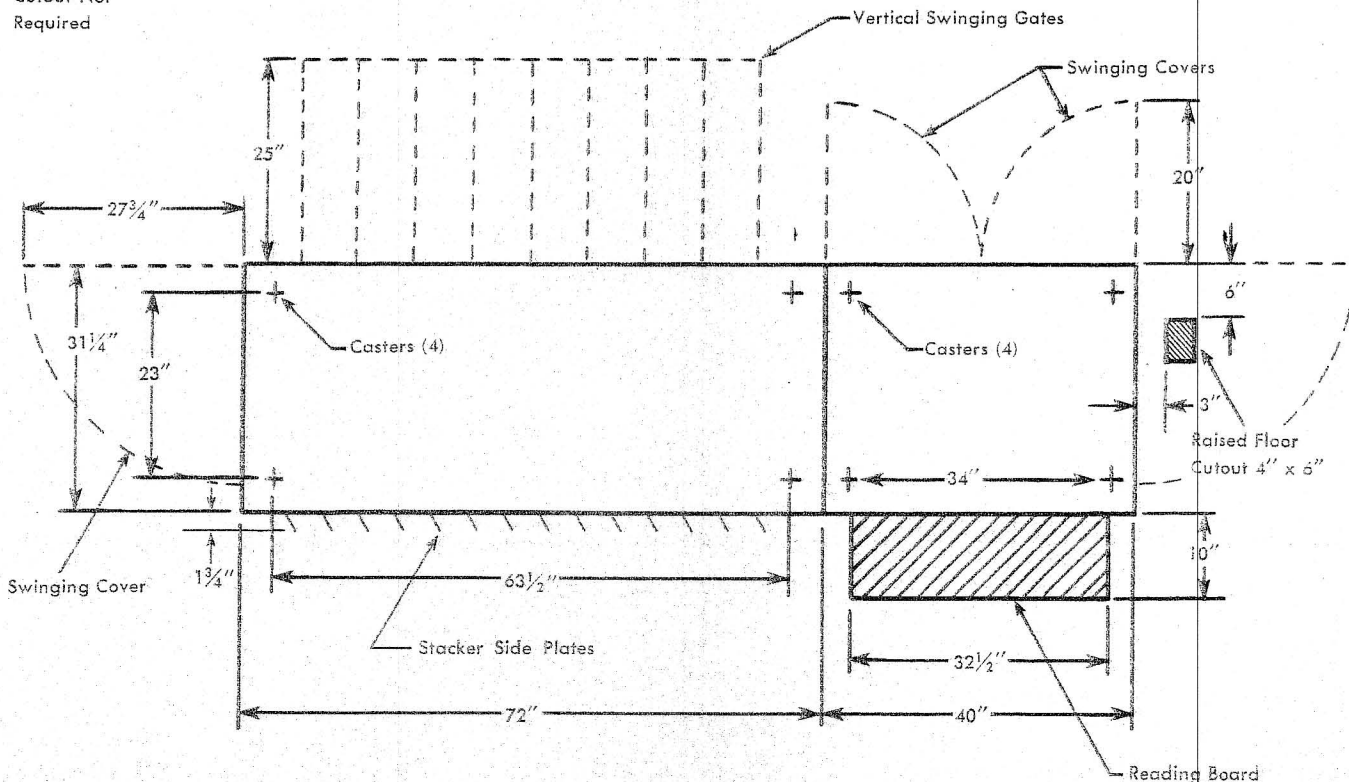
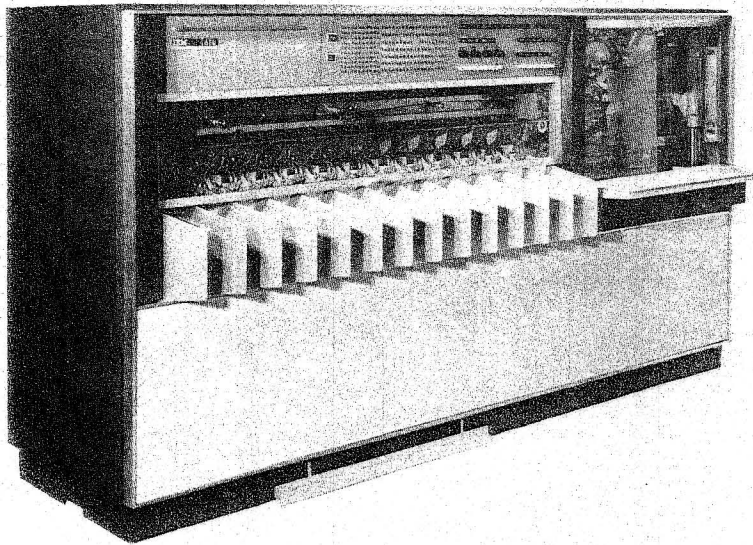


Figure 13. IBM 1412 Magnetic Character Reader, Model I

NOTES



1. Dimensions
 1419 — 112" Wide, 35½" Deep (plus 6" for reading board), 60½" High.
 Shipped in two sections, 40" and 72" Wide.
 Accumulator unit — 17" x 20½" x 38½"
2. Maximum Weight
 1419 — 2600 lbs.
 Accumulator unit — 105 lbs.
3. Service Clearances
 1419 — Each side 36"
 front 42", rear 48"
 Accumulator unit — none required
4. I/O attachment cable from 1401 is attached to 1419 by pluggable connector. Cable from 1419 to accumulator unit is attached to 1419 by pluggable connector and is permanently attached to accumulator unit.
5. Power to 1419 is provided from service receptacle. Power cord can exit from rear of unit to provide additional length.

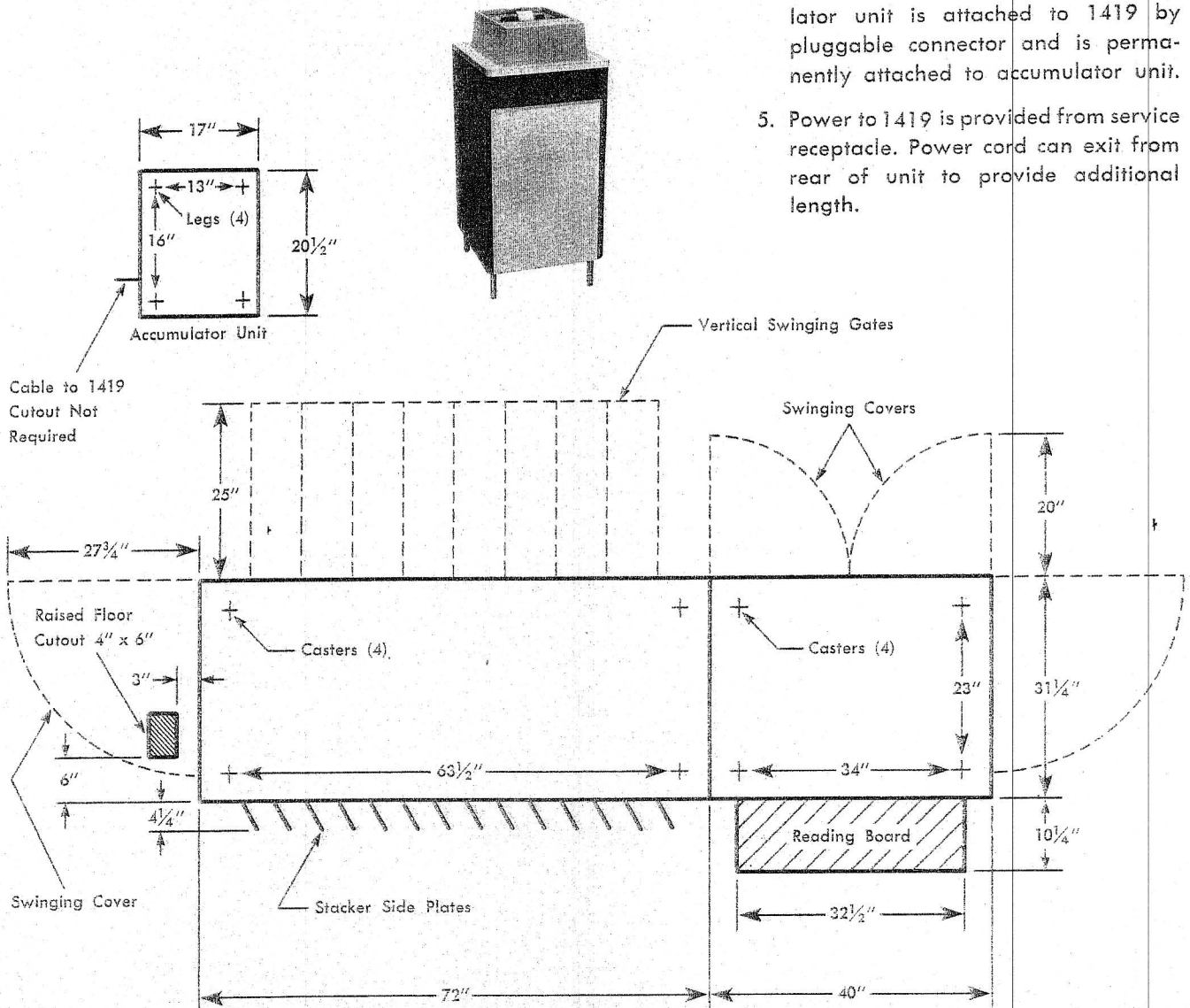
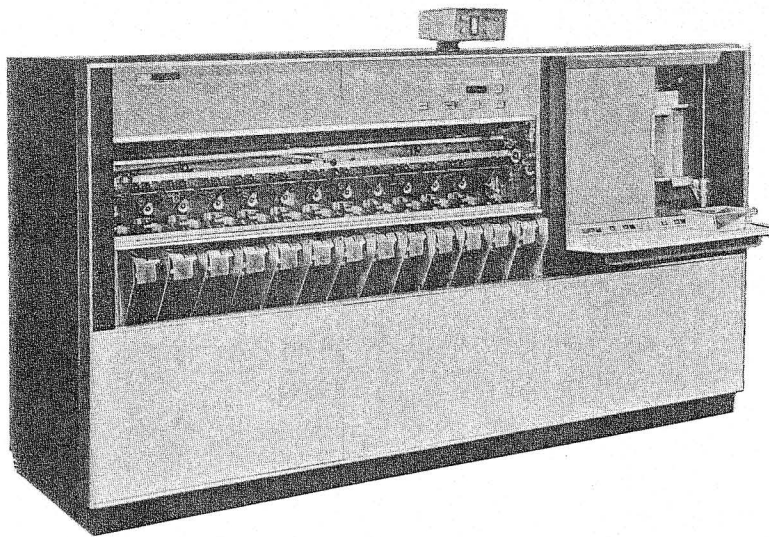


Figure 14. IBM 1419 Magnetic Character Reader, Model I



NOTES

1. Dimensions
112" Wide, 33" Deep (plus 8 1/4" for reading board), 60 1/2" High (plus 7 3/8" for CRT). Shipped in two sections, 40" and 72" wide.
2. Maximum Weight
Model 1 — 1950 lbs.
Model 2 — 2300 lbs.
3. Service Clearances
Left 36", right 36", front 42", rear 48"
4. I/O attachment cable from 1401 is permanently attached to 1418.
5. Power to 1418 is provided from service receptacle.
6. Photo shows 1418 Model 2. Model 1 is identical, except that it has only 3 stackers.

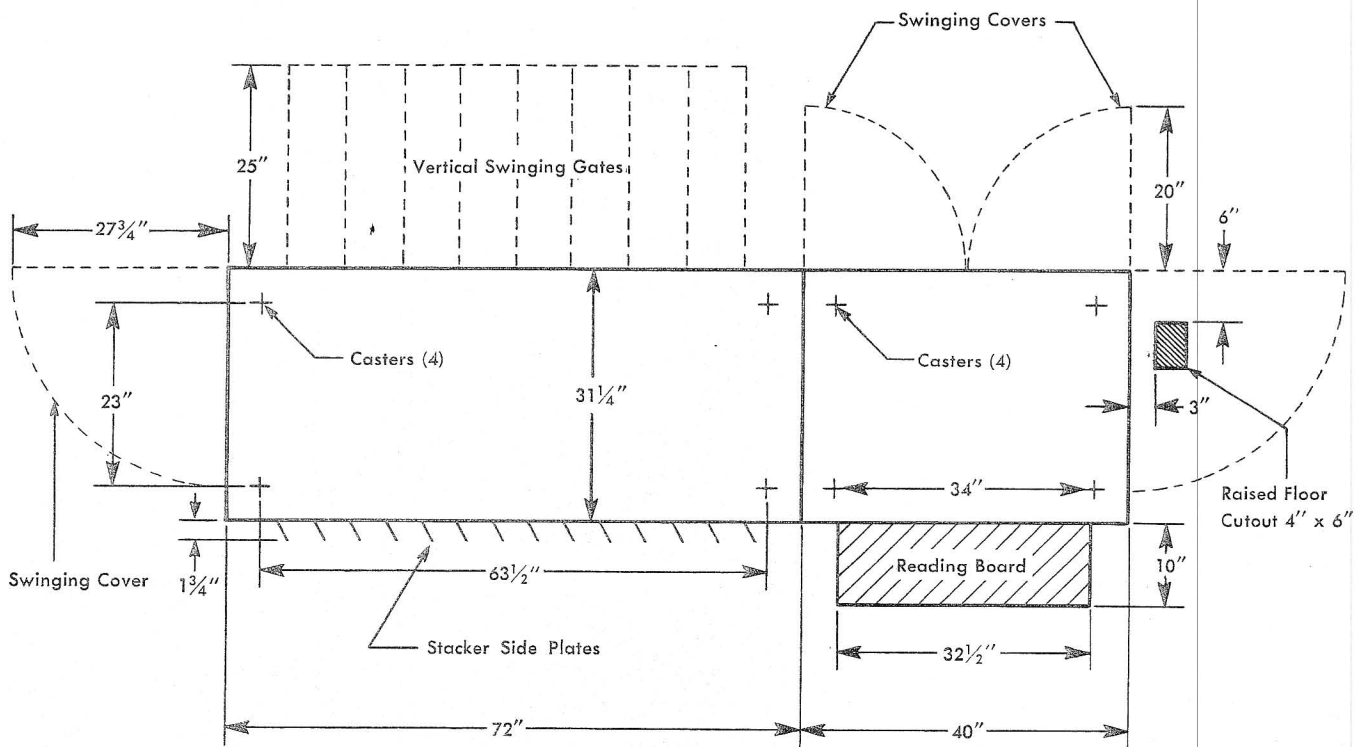
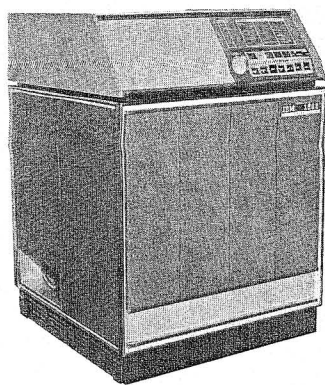


Figure 15. IBM 1418 Optical Character Reader, Models 1 and 2



NOTES

1. Dimensions
29" Wide, 30 $\frac{5}{8}$ " Deep, 39 $\frac{3}{8}$ " High
2. Maximum Weight 500 lbs.
3. Service Clearances
Each side 30", front and rear 42"
4. I/O attachment cable from 1401 is attached to 1009 by pluggable connector. Cable to digital subset is permanently attached to 1009.
5. Power to 1009 is provided from service receptacle.
6. Digital subset is provided by telephone company.

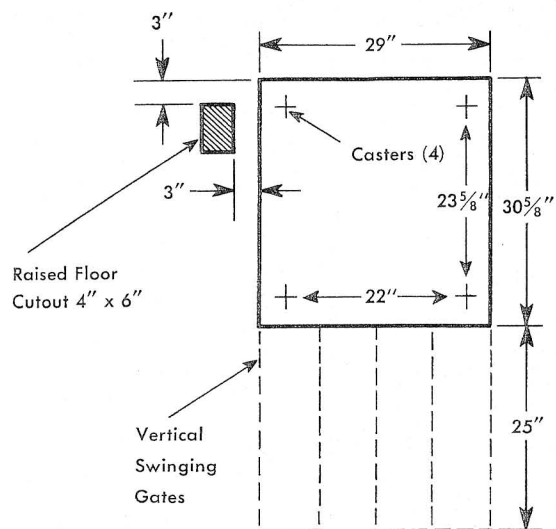
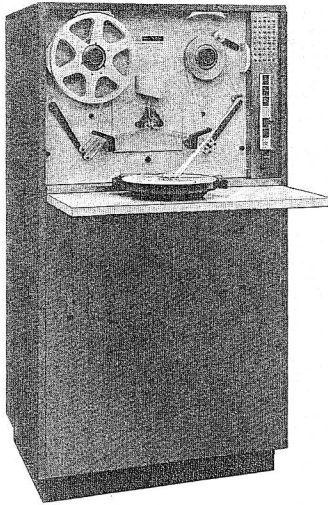


Figure 16. IBM 1009 Data Transmission Unit



NOTES

1. Dimensions
 $31\frac{3}{4}$ " Wide, $24\frac{1}{8}$ " Deep (plus $13\frac{1}{8}$ " for reading board), 60" High
2. Maximum Weight 529 lbs.
3. Service Clearances
 30 " each side, front 30 ", rear 42 ".
 Front clearance is measured from front of reading board.
4. I/O attachment cable from 1401 is attached to 1011 by pluggable connector
5. Power to 1011 is provided from service receptacle.

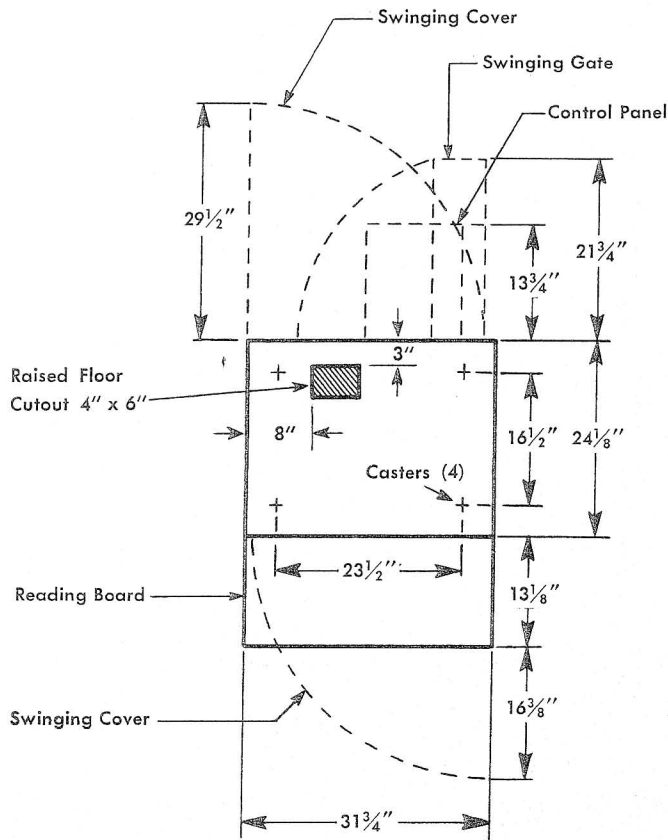
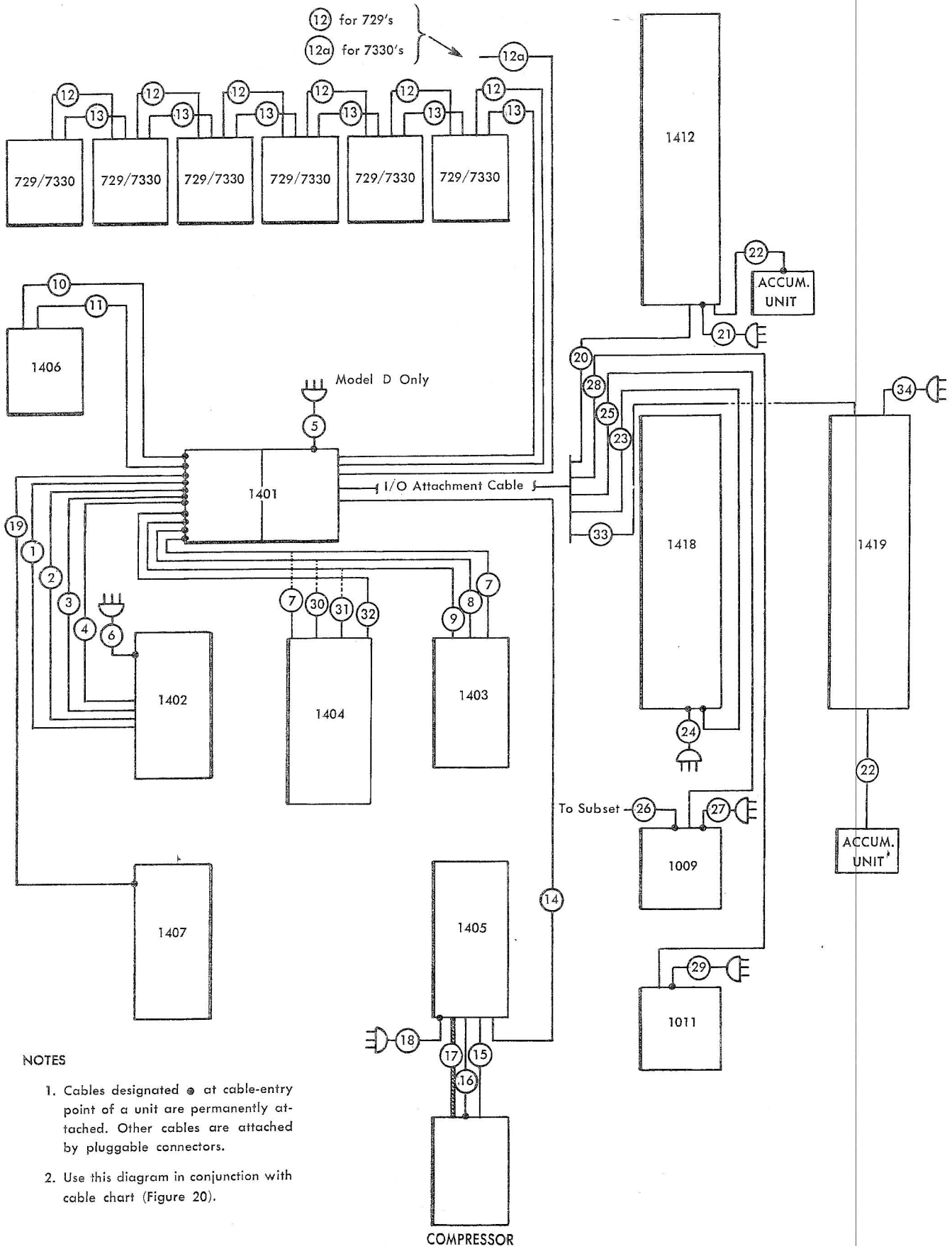


Figure 17. IBM 1011 Paper Tape Reader

UNIT	DIMENSIONS			MAXIMUM WEIGHT	SERVICE CLEARANCES				NOTES
	WIDTH	DEPTH	HEIGHT		RIGHT	LEFT	FRONT	REAR	
1401 Model A	29"	30 $\frac{5}{8}$ "	60"	1013 lbs.	30"	30"	42"	42"	
1401 Model B	58"	30 $\frac{5}{8}$ "	60"	1840 lbs.	30"	30"	42"	42"	
1401 Models C, E, F	58"	30 $\frac{5}{8}$ "	60"	2023 lbs.	30"	30"	42"	42"	
1401 Model D	58"	30 $\frac{5}{8}$ "	60"	2170 lbs.	30"	30"	42"	42"	
1402 Model 1	57 $\frac{1}{2}$ "	29 $\frac{3}{4}$ "	45 $\frac{1}{4}$ "	1300 lbs.	36"	36"	36"	36"	Add 14 $\frac{5}{8}$ " to height for removable read file feed.
1403 Models 1, 2	47 $\frac{3}{4}$ "	28 $\frac{1}{2}$ "	53 $\frac{1}{4}$ "	750 lbs.	30"	30"	36"	36"	
1404 Model 2	67 $\frac{1}{8}$ "	31 $\frac{3}{4}$ "	53 $\frac{1}{2}$ "	1600 lbs.	48"	42"	36"	36"	
Front Forms Cart	18 $\frac{1}{4}$ "	25"	21 $\frac{1}{4}$ "						Maximum projection of forms carts: 1403 — 11" front and rear 1404 — 5" front, 9" rear
Rear Forms Cart	24 $\frac{1}{2}$ "	23 $\frac{3}{4}$ "	21 $\frac{1}{4}$ "						
1406 Models 1, 2, 3	29"	30 $\frac{5}{8}$ "	39 $\frac{5}{8}$ "	350 lbs.	30"	30"	42"	42"	
729 Models II, IV, V	29 $\frac{1}{8}$ "	33 $\frac{7}{8}$ "	69 $\frac{1}{4}$ "	1160 lbs.	2"	2"	30"	30"	Side clearance allows a 729 to be moved from a line of 729's.
7330	29"	30 $\frac{3}{4}$ "	58"	637 lbs.	6"	6"	44"	40"	
1405 Models 1, 2	60 $\frac{5}{8}$ "	30 $\frac{3}{4}$ "	70"	2115 lbs.	48"	48"	30"	42"	2' clearance above 1405 is required for removal of disk shaft.
Compressor	39 $\frac{3}{4}$ "	32 $\frac{7}{8}$ "	29 $\frac{1}{4}$ "	700 lbs.	30"	30"	30"	30"	
1407	60"	29"	29"	300 lbs.	30"	30"	30"	30"	Add 10" to height for typewriter.
1412 Model 1	112"	33"	60 $\frac{1}{2}$ "	2400 lbs.	36"	36"	42"	48"	Add 8 $\frac{1}{4}$ " to depth for reading board.
1419 Model 1	112"	35 $\frac{1}{2}$ "	60 $\frac{1}{2}$ "	2600 lbs.	36"	36"	42"	48"	Add 6" to depth for reading board.
Accumulator Unit	17"	20 $\frac{1}{2}$ "	38 $\frac{1}{2}$ "	105 lbs.					
1418 Model 1	112"	33"	60 $\frac{1}{2}$ "	1950 lbs.	36"	36"	42"	48"	Add 8 $\frac{1}{4}$ " to depth for reading board. Add 7 $\frac{3}{8}$ " to height for CRT.
1418 Model 2	112"	33"	60 $\frac{1}{2}$ "	2300 lbs.	36"	36"	42"	48"	Add 8 $\frac{1}{4}$ " to depth for reading board. Add 7 $\frac{3}{8}$ " to height for CRT.
1009	29"	30 $\frac{5}{8}$ "	39 $\frac{5}{8}$ "	500 lbs.	30"	30"	42"	42"	
1011	31 $\frac{3}{4}$ "	24 $\frac{1}{8}$ "	60"	529 lbs.	30"	30"	30"	42"	Add 13 $\frac{1}{8}$ " to depth for reading board. Front service clearance measured from front edge of reading board.

Figure 18. Summary of Physical Characteristics



NOTES

1. Cables designated ● at cable-entry point of a unit are permanently attached. Other cables are attached by pluggable connectors.
2. Use this diagram in conjunction with cable chart (Figure 20).

Figure 19. Cable Diagram

CONNECTING UNITS	KEY NO.	FUNCTION	DIAM.	AVAILABLE LENGTHS	NOTES
1401-1402	1	Signal	1¼"	11', 15', 18'	1402 not available on Model D
1401-1402	2	Signal	1¼"	11', 15', 18'	
1401-1402	3	Power	1¼"	11', 15', 18'	
1401-1402	4	Power	1½"	11', 15', 18'	
1401-Power Receptacle	5	Power	1"	14'	Model D only
1402-Power Receptacle	6	Power	¾"	14'	Models A, B, F (Card)
1402-Power Receptacle	6	Power	1"	14'	Models C, E, F (Tape)
1401-1403/1404	7	Signal	1⅙"	13', 16', 21'	Cable lengths are for 1401 Models B, C, D, E and F. Cables for Model A are 3' shorter (10', 13', 18'). See note below.*
1401-1403	8	Signal	1⅙"	13', 16', 21'	
1401-1403	9	Power	7⁄8"	13', 16', 21'	
1401-1406	10	Signal	1¼"	10'	
1401-1406	11	Power	1¼"	10'	
1401-729	12	Signal	1⅙"	100' max.	Length is total from 1401 to first 729 (7330) and to each additional 729 (7330). Both cables 12 and 12a are used when 729's and 7330's are intermixed.
1401-7330	12a	Signal	1⅙"	100' max.	
1401-729 (7330)	13	Power	1⅝"	80' max.	
1401-1405	14	Signal	1⅝"	40' max.	
1405-Compressor	15	Signal	½"	40' max.	
1405-Compressor	16	Power	¾"	40' max.	
1405-Compressor	17	Air Hose	7⁄8"	40' max.	
1405-Power Receptacle	18	Power	5⁄8"	14'	
1401-1407	19	Signal/Power	1⅓"	10'	
1401-1412	20	Signal	1½"	25' max.	Connected to I/O Attachment Receptacle on 1401**
1412-Power Receptacle	21	Power	¾"	10'	
1412-Accumulator Unit	22	Signal/Power	5⁄8"	5'	Also connects 1419 to Accumulator Unit.
1401-1418	23	Signal	1⅙"	25' max.	Connected to I/O Attachment Receptacle on 1401**
1418-Power Receptacle	24	Power	1⅓"	15'	
1401-1009	25	Signal	1"	15'	Connected to I/O Attachment Receptacle on 1401**
1009-Digital Subset	26	Signal	3⁄8"	15'	
1009-Power Receptacle	27	Power	3⁄8"	15'	
1401-1011	28	Signal	1"	80' max.	Connected to I/O Attachment Receptacle on 1401**
1011-Power Receptacle	29	Power	½"	14'	
1401-1404	30	Signal	1⅙"	13', 16', 21'	
1401-1404	31	Power	1⅓"	13', 16', 21'	
1401-1404	32	Signal	¾"	13', 16', 21'	Required only when 1404 is equipped with Comparing feature.
1401-1419	33	Signal	1½"	40' max.	Connected to I/O Attachment Receptacle on 1401**
1419-Power Receptacle	34	Power	¾"	6'	

* For all models of 1401 prior to machine serial number 1401-20890, cables numbered 7, 8, and 9 are 8', 11', and 16' long, and are measured from a different raised-floor cutout (see Figure 4).

** Only one of these units can be connected at a time to the I/O Attachment Receptacle. Use this chart in conjunction with Cable Diagram (Figure 19).

Figure 20. Cable Requirements

UNIT	VOLTAGE	KVA	SERVICE AMPS.	PLUG TYPE OR EQUIV.*	NOTES
Model A System	208 or 230 volts 3 ϕ -60 cycle	3.2	30	R & S # 3760	Power from 1402. Includes 1401 A, 1402 and 1403
Model B System	208 or 230 volts 3 ϕ -60 cycle	4.0**	30	R & S # 3760	Power from 1402. Includes 1401 B, 1402 and 1403/1404
Models C & E Systems:	208 or 230 volts 3 ϕ -60 cycle	4.5**	60	R & S # SC7328	Power from 1402. Includes 1401 C and E, 1402 and 1403/1404
Model D System	208 or 230 volts 3 ϕ -60 cycle	3.7	60	R & S # SC7328	Includes 1401 D and 1403
Model F (Card System)	208 or 230 volts 3 ϕ -60 cycle	4.6**	30	R & S # 3760	Power from 1402. Includes 1401 F, 1402 and 1403/1404
Model F (Tape System)	208 or 230 volts 3 ϕ -60 cycle	4.6**	60	R & S # SC7328	Power from 1402. Includes 1401 F, 1402 and 1403/1404
1406 Models 1, 2, 3	-----	0.4	—	-----	Power from 1401 unit. Add KVA to system KVA.
729 Models II, IV, V	-----	1.6	—	-----	Power from 1401 unit. Add KVA for each 729 to system KVA.
7330	-----	1.1	—	-----	Power from 1401 unit. Add KVA for each 7330 to system KVA.
1405 Models 1, 2	208 or 230 volts 3 ϕ -60 cycle	5.0	30	R & S # 3760	
Compressor	-----	4.0	—	-----	Power from 1405 unit. Add KVA to 1405 KVA.
1407	-----	0.2	—	-----	Power from 1401 unit. Add KVA to system KVA.
1412 Model 1	208 or 230 volts 1 ϕ -60 cycle	2.7	30	R & S # 3750	
1419 Model 1	208 or 230 volts 1 ϕ -60 cycle	3.3	30	R & S # 3750	
Accumulator Unit	-----	—	—	-----	Power from 1412 or 1419
1418 Models 1, 2	208 or 230 volts 3 ϕ -60 cycle	4.6	30	R & S # 3760	
1009	115 volts 1 ϕ -60 cycle	0.3	20	P & S # 5267	208/230 volts 1 ϕ optional — uses R & S # 3720 plug.
1011	208 or 230 volts 1 ϕ -60 cycle	1.8	15	R & S # 3720	
<p>* These plug types are used on the power cords attached to the IBM units. The customer provides power receptacles to match the plugs.</p> <p>** Add 0.7 KVA when 1404 is used instead of 1403.</p>					<p>R & S — Russell and Stoll P & S — Pass and Seymour</p>

Figure 21. Electrical Requirements

UNIT	BTU/Hr.*	CFM*
1401 Model A	4,200	400
1401 Model B	6,700	660
1401 Models C, E	8,100	810
1401 Model D	9,100	840
1401 Model F	8,500	830
1402 Model 1	3,500	90
1403 Models 1, 2	3,000	310
1404 Model 2	5,100	280
1406 Model 1	450	90
1406 Model 2	650	90
1406 Model 3	850	120
729 Models II, IV, V	3,900	550
7330	3,415	150
1405 Models 1, 2	7,240	500
Compressor	10,800	300
1407	425	60
1412 Model 1	6,300	320
1419 Model 1	8,500	400
Accumulator Unit	-----	---
1418 Models 1, 2	14,000	575
1009	1,000	120
1011	4,100	150
* BTU and CFM are based on maximum use of available special features.		

Figure 22. Heat Dissipation and Air-Flow

1401 POWER, SPACE, WEIGHT, AND SITE PREPARATION

	Minimum (Model A)	Maximum (Model C + 6*729s)	
Minimum system requires	1 Ton		
maximum system requires		3.5 Tons	
Power, computer (min.= Model A)	2.88 kW	12.15 kW	
(Max)	3.20 KVA	13.50 KVA	0.80 to 0.90 pf
Power, air condition	3 kW	11 kW	
Volume, computer	117.2	403.8 cu ft	
Area, computer	33.8	80.8 sq ft	
Room size	239	463 sq ft	
Floor loading	25	325 lbs/sq ft	
Volume, air conditioner	6	84 cu ft	
Area, computer	3	12 sq ft	
Weight, computer	3,063 lbs	11,530 lbs	

Normal air conditioning will usually be adequate, providing the capacity is available to handle the added B.T.U. of heat generated by the system.

Relatively few restrictions are placed on the arrangement of the 1401 System units.

Electrical requirements - 208 or 230 volts (+ 10 %)
3-phase (4-wire), 60 cycle (+ 1/2 cycle).

Environmental requirements	Power On (system operating)
temperature	60° - 90° F
relative humidity	20 - 80 %
air filtration	20 % (minimum)

Power Off (extended non-operational period)	
temperature	50° - 110° F
relative humidity	0 - 80 %

These environmental requirements are less stringent than those that apply to storage areas for IBM cards and magnetic tape.

It is recommended that instruments capable of recording temperature and humidity be provided.

The 1401 System does not require a raised floor. However, if the rated floor loading of the area in which the system is to be installed is inadequate, certain types of raised floor can serve the purpose of spreading the load evenly over a larger area. Also, the use of a raised floor reduces the possibility of damage to cables and improves the appearance of the installation.

(From the 1964 BRL Report, copy at <http://www.tu-darmstadt.de/hrz/historie/ibm1401-details.html>)