

GA27-3103-4  
File No. S370-15  
(United States and Canada)

**Systems**

**IBM 3770**  
**Data Communication System**  
**Customer Site Planning Guide**

**IBM**

*Fifth Edition* (January 1978)

This is a major revision of, and obsoletes GA27-3103-3. Editorial and organizational changes have been made throughout; and the manual should be reread in its entirety. Changes are continually made to the information herein; any such changes will be reported in subsequent revisions. Before using this publication in connection with the operation of IBM systems or equipment, ensure you have the latest edition. This order number (GA27-3103) applies only in the United States and Canada.

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This manual has been written by the IBM System Communications Division, Publication Center, Department E01, P. O. Box 12195, Research Triangle Park, North Carolina 27709. A form for readers' comments is provided at the back of this publication. If the form has been removed, comments may be sent to the above address. Comments become the property of IBM.

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Dear Customer:

This planning guide will assist you in detailed preinstallation planning that will enable you to provide the proper environment for the IBM 3770 Data Communication System.

*Note:* It is your responsibility to prepare your location for the installation of the 3770 units. Your IBM marketing representative will provide you with the configuration of your communication system and the specific features of each machine. This information is essential in planning for your installation.

Following this planning guide will enable you to select the best placement for the 3770 and prepare the proper hookup facilities before the arrival of the 3770 units. With proper preparation, the units will be in position and ready for hookup and installation by the IBM customer engineer. In preparation, you should:

- Familiarize yourself with the contents of this guide.
- Contact your communication company's representative, to allow adequate time for your communication hookup before the terminal arrives.
- Plan for the training of your operator(s). Your IBM marketing representative can provide you with operator training information.
- Note your planning responsibilities, and those of the IBM marketing representative and the IBM customer engineer.

#### **CUSTOMER RESPONSIBILITY**

- Plan the site - layout and space.
- Environmental requirements - air, lighting, temperature, humidity, security, safety.

- Electrical power.
- Communication requirements - type of service, modem interface.
- Locate and unpack machines.
- Provide terminal ID assignment - for each terminal on the switched network.
- Define BSC WACK response - immediate or delayed.

#### **IBM MARKETING REPRESENTATIVE RESPONSIBILITY**

- Provide overall planning input.
- Outline training requirements.
- Confirm installation date with you.
- Advise IBM Field Engineering of site planning configuration, dates, and changes.
- Ensure you have the following manuals, as appropriate: 3770 Operator's Guides; 3770 Programmer's Guide; Forms Design Reference Guide; 3770 System Components; Remote Multiplexer and Communication Terminals Manual; and all pertinent modem manuals.

#### **IBM CUSTOMER ENGINEER RESPONSIBILITY**

- Provide technical installation guidance as requested
- Make the hookup, installation and checkout of the system units.

## Introduction 3770 Data Communication System

The IBM 3770 Data Communication System is a family of terminals offering a variety of communication features as well as provision for the attachment of a selection of input/output card readers, card punches, and output printers. The unit specifications in this publication apply to all individual models unless otherwise noted.

### BASIC TERMINALS

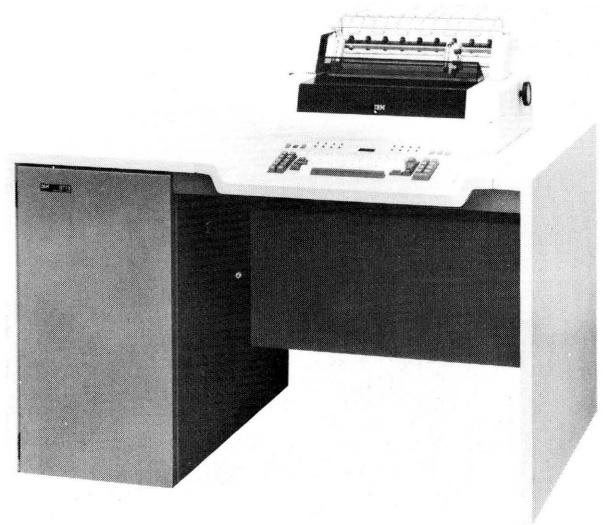
The basic terminals of the IBM 3770 Data Communication System are:

- The 3771 Communication Terminal, a desk-style console keyboard-printer. Either one card reader or one card punch can be attached.



**IBM 3771 Communication Terminal**

- The 3773 Communication Terminal, a desk-style console keyboard-printer with a diskette storage device (standard).



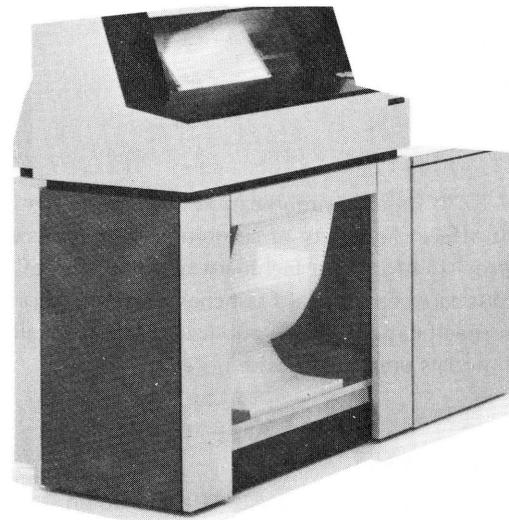
**IBM 3773 Communication Terminal**

- The 3774 Communication Terminal, a desk-style console keyboard-printer with optional diskette storage devices (one or two). A 3784 Line Printer and one card reader and one card punch can be attached. (Display available on 3774 programmable model.)



**IBM 3774 Communication Terminal**

- The 3775 Communication Terminal, a desk-style console keyboard-printer with optional diskette storage devices (one or two). One card reader and one card punch can be attached. (Display available on programmable model.)
- The 3776 Communication Terminal, a desk-style console keyboard-printer with optional diskette storage devices (one or two). One card reader and one card punch can be attached.



**IBM 3203 Printer Model 3**

**IBM 3775 or 3776 Communication Terminal**

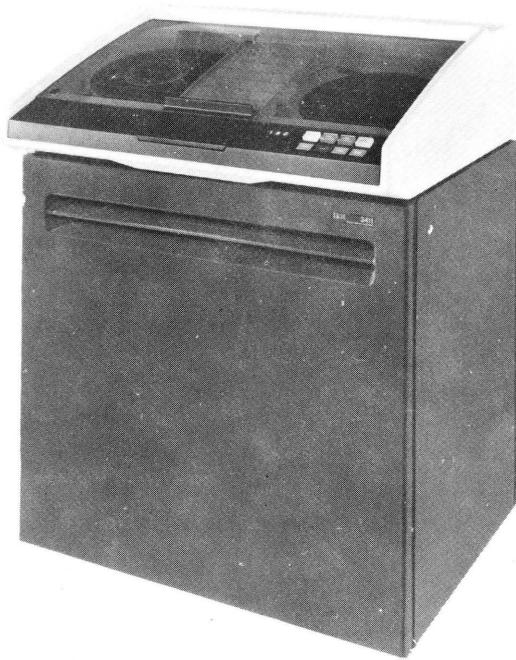
- The 3777 Communication Terminal, with cable attached IBM 3203 Printer and optional IBM 2502 Card Reader (located on console if attached). A desk style communication controller with high speed remote job entry, card reader and high speed line printing capability. (One or two diskettes optional.)



**IBM 3777 Communication Terminal With 2502 Card Reader**

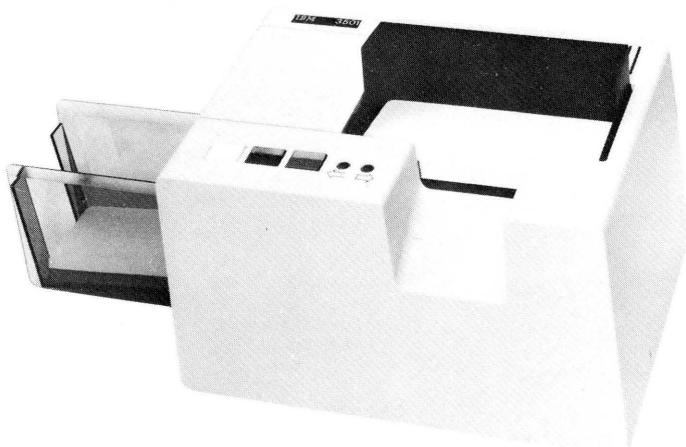
The input/output (I/O) devices that can be selected for the 3770 Data Communication System are:

- The 3411 Magnetic Tape Unit and Control Model 1.



**IBM 3411 Magnetic Tape Unit and Control Model 1 (Attaches to 3776 Models 3 and 4, 3777 Model 3.)**

- The 3501 Card Reader, a table-top device that attaches to a 3771, 3774, 3775, or 3776 Models 1 and 2. The table or other surface on which this card reader is placed must be provided by you. (Card Reader may be placed on the 3774, 3775, or 3776 Models 1 and 2)



**IBM 3501 Card Reader (Attaches to 3771, 3774, 3775, or 3776 Models 1 and 2 Communication Terminal)**

- The 3782 Card Attachment Unit. This unit serves as a stand for mounting a card punch or card reader and supplies power and control circuits to attach the punch or reader to a 3771, 3774, 3775, or 3777 Models 2 and 3 (Card punch only). Model 1 attaches a 3521 Card Punch to a 3771, 3774, 3775, or 3777 Models 2 or 3. Model 2 attaches a 2502 Card Reader to a 3774, 3775, or 3776.



**IBM 3782 Card Attachment Unit with 3521 Card Punch (Attaches to 3771, 3774, 3775, 3776, or 3777 Models 2 or 3)**



**IBM 3782 Card Attachment Unit Model 2 with 2502 Card Reader (Attaches to 3774, 3775, 3776)**

- The 3784 Line Printer, a line printer for attachment to a 3774 Communication Terminal.



**IBM 3784 Line Printer (Attaches to 3774 Communication Terminal)**

The items that you should consider as you plan the placement and hookup of your system are listed below and are discussed in the following text. All items should be completed before the arrival of your system.

Primary Considerations:	Page
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In order to plan your installation, you must know which of the following features were included in your terminal system. Be sure you have checked *one* item in each category.

**POWER PLUG**

Locking \_\_\_\_\_ Non-Locking \_\_\_\_\_

**Second Diskette**

(Optional on 3774, 3775, 3776 or 3777; increases machine width from 48' (122 cm) to 62' (157 cm)

Yes \_\_\_\_\_ No \_\_\_\_\_

**Forms Stand(s) (Optional)**

Yes \_\_\_\_\_ No \_\_\_\_\_

**COMMUNICATION SERVICES (OPTIONAL)**

If your terminal will be communicating with another device, check one of the seven items listed below. Integrated modems are not available on 3776 Models 3 and 4 or 3777.

- (1) External Modem (for Digital Data Communications Services) \_\_\_\_\_
- (2) 3776 Model 3 or 4 and 3777 Model 3 (Data-Phone\* Digital Service Attachment) at 9,600 bps \_\_\_\_\_

*Public Switched Telecommunications Network: IBM Integrated Modem*

- (3) Switched Network with Auto Answer Feature (Dial) \_\_\_\_\_
- (4) Switched Network with Manual Answer Feature (1,200 bps only) \_\_\_\_\_

*Private Line (Nonswitched) Voice-Grade Channels:*

*IBM Integrated Modem*

- (5) Nonswitched Channel \_\_\_\_\_
- (6) Nonswitched with Switched Network Backup \_\_\_\_\_

*Modem Fan-out Feature (3774, 3775, or 3776 Models 1 or 2)*

When Modem Fan-out feature is to be used with (5) or (6) above, additional space will be required for the added terminal(s).

- (7) 3776 Models 3 and 4 or 3777 with External Modem
- (7A) External Modem. 2,400-19,200 bps \_\_\_\_\_
- (7B) High Speed Digital Interface. 19,200 bps \_\_\_\_\_

This checklist must be completed before you proceed. If you need help to complete it, contact your IBM marketing representative.

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\*Trademark of the American Telephone and Telegraph Co.

**MACHINE LOCATION**

The units you have ordered should be located for convenient operator access and servicing. The service clearances required are outlined under space requirements.

Your IBM marketing representative can supply templates of the IBM floor-mounted units drawn to a scale of 1/4" = 1 foot. Floor-plan layouts will help in planning your configuration.

The following illustrations are *typical* layouts for the 3770 system.

**NOTES:**

- Each of the attachable I/O devices may be placed in any location within reach of the interconnecting cable. The interconnecting cable is provided by IBM for each I/O device. You must consider the length of these cords.

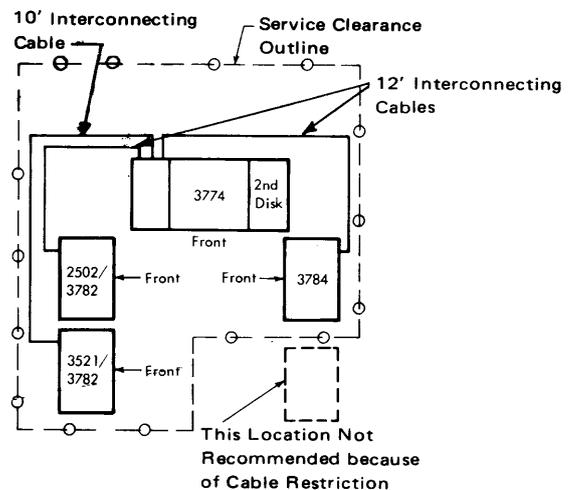
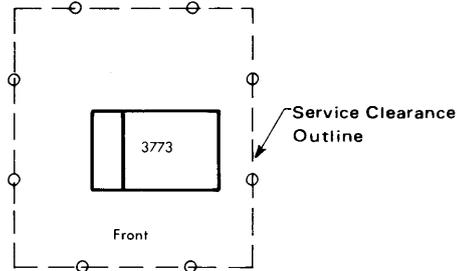
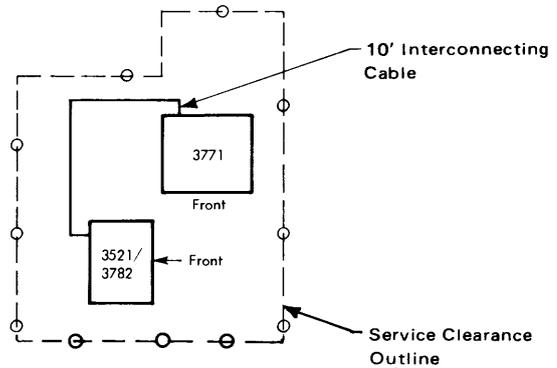
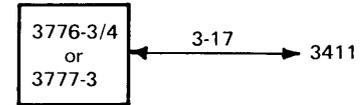
Power Cords (Except as noted)	-----	8 ft.
Power Cord 3203	-----	14 ft.
Power Cord 3411	-----	11 ft.
Communication Cables (except as noted)	-----	18 ft.
Communication Cable-3776-3/4 and 3777-3	-----	55 ft.
Interconnecting Cables (except as noted)	-----	12 ft.
3411 to 3776-3/4 and 3777-3*	-----	26 ft.
Variable length	-----	26 ft.
3501 to Controller	-----	10 ft.
3521/3782 to Controller	-----	10 ft.
3203 to 3777-1/2	-----	20 ft.

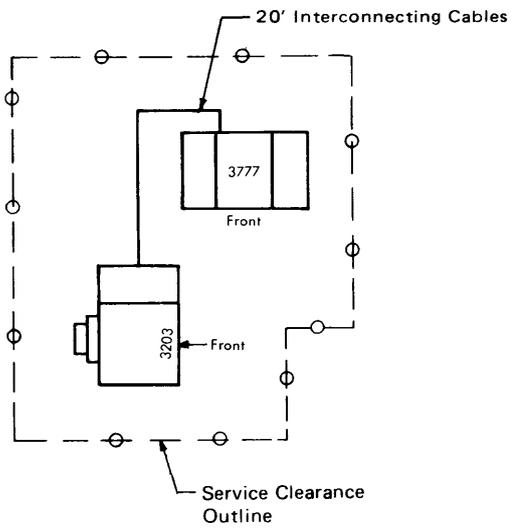
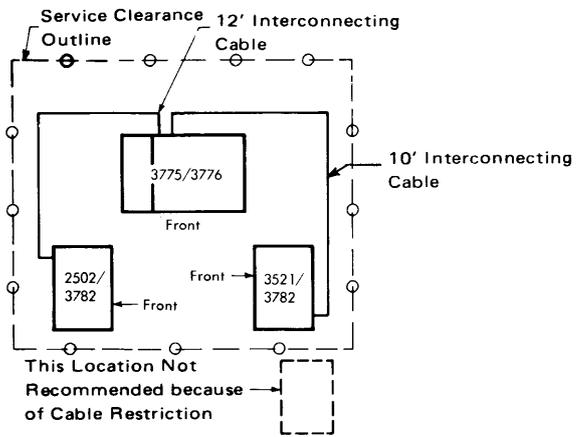
\*must be ordered separately

- If the modem fan-out feature is ordered, the other communication terminals (3771, 3773, 3774, 3775, 3776 or 3777) must be within 18 feet of the controlling terminal.
- The power cord exits each unit near the left rear corner except for the 3771 and 3782 and 3203. On the 3771 and 3782, it exits the right rear corner and on the 3203 it exits the right side.
- For the cable attached Operator ID Reader on the 3771, 3773, 3776 Models 3 and 4, 3777 Model 3, a mounting surface (table, desk) must be supplied within limits of the 6 foot cable. The ID Reader is approximately 5 3/4" x 2 1/2" x 2" high and weighs 2 lbs.

- For the 3411 Signal Cables order system/3 cable group 3-17. This cable group must be ordered separately but for system 3770 usage (variable length).

GROUP NO	NO OF CABLES	FROM	TO	MAX LENGTH
3-17	3	3411	3776-3/4 and 3777-3	26 FT (7.9 m)

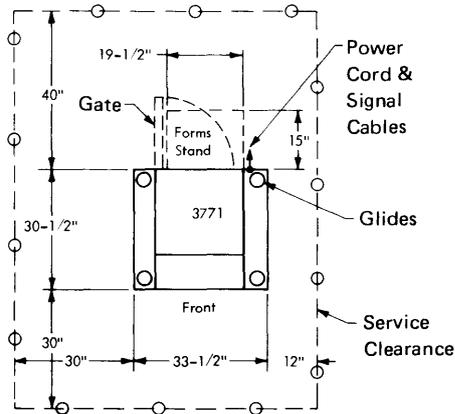




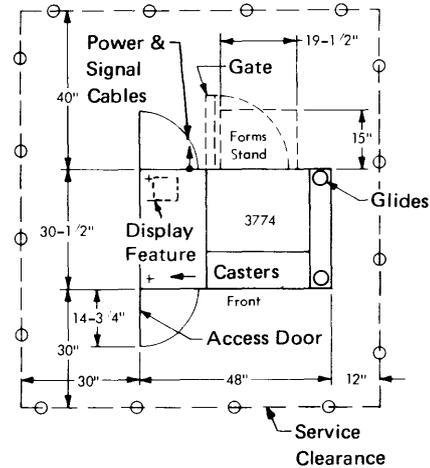
## Space Requirements

*IBM 3771 Communication Terminal Models 1, 2, 3*

(Scale 1/4" = 1')

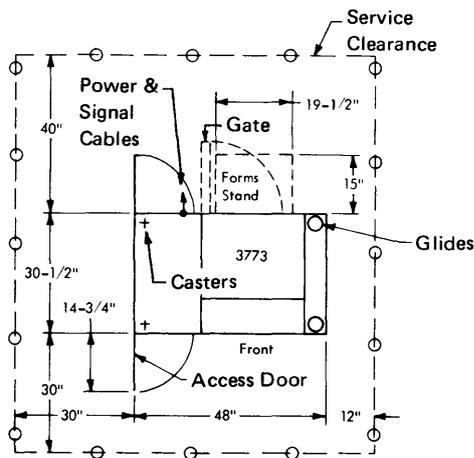


*IBM 3774 Communication Terminal Models 1, 2, P1, P2*



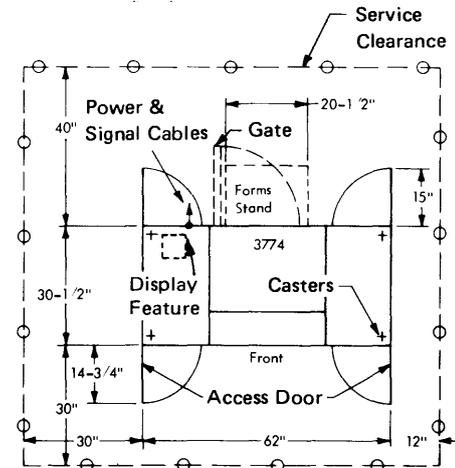
*IBM 3773 Communication Terminal Models 1,2,3, P1, P2, P3.*

(Scale 1/4" = 1')



*IBM 3774 Communication Terminal with Second Diskette Models 1, 2, P1, P2*

(Scale 1/4" = 1')



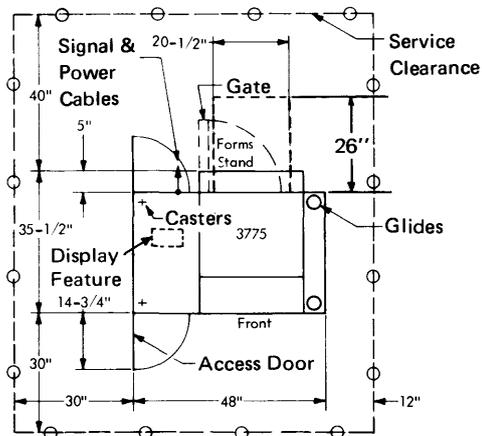
**Notes:**

Unit with second diskette can be unbolted to reduce length.

Display cable is connected to lower rear of console and may occupy any position on left end of 3774.

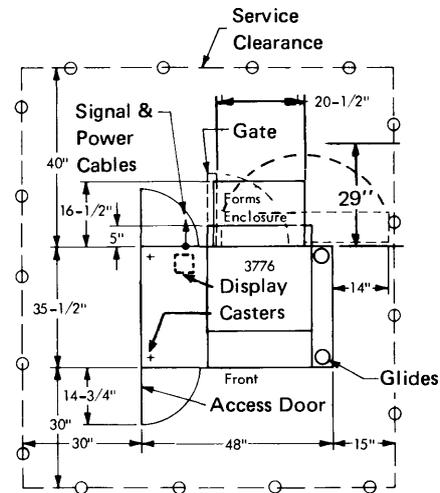
**IBM 3775 Communication Terminal Models 1, P1**

(Scale 1/4" = 1')



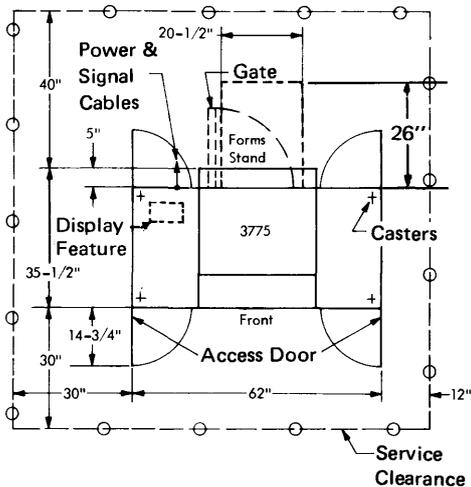
**IBM 3776 Communication Terminal**

(Scale 1/4" = 1')



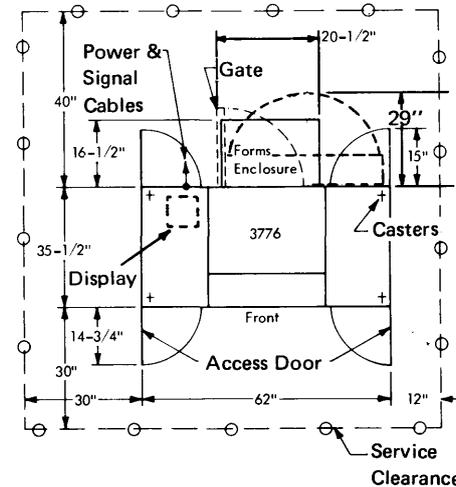
**IBM 3775 Communication Terminal With Second Diskette Models 1, P1**

(Scale 1/4" = 1')



**IBM 3776 Communication Terminal With Second Diskette**

(Scale 1/4" = 1')



**Notes:**  
 Unit with second diskette can be unbolted to reduce length.  
 Display, cable connected to lower rear of console may occupy any position on left end of 3775.

**Note:** Unit with second diskette can be unbolted to reduce length.  
 Display is on 3776 Models 3 and 4 only.

## 3770 Data Communication System Unit Specifications

**Note:** Units require 115 volt, 60 cycle, 1 phase, 15 ampere receptacles except 3777/3203 and 3411 Model 1. 3777 requires 115 volt, 60 cycle, 1 phase, 20 ampere receptacle. 3203 requires 208 or 230 volt, 60 cycle, 3 phase, 15 ampere receptacle. 3411 requires 208 or 230 volt, 60 cycle, 1 phase, 15 ampere receptacle.

<i>Machine</i>	<i>Front</i>	<i>Side***</i>	<i>Height</i>	<i>Weight (Pounds)</i>	<i>KVA</i>	<i>Amperes (Max)</i>	<i>Heat Output (BTU/Hr)</i>
3771	33-1/2	30-1/2	38-1/8†	225	0.6	5.4*	1,050*
3773	48	30-1/2	38-1/8†	300	0.4	3.3	1,050
3774 (With 2nd diskette)	48	30-1/2	38-1/8†	425	1.1	9.3*	2,100*
	62	30-1/2	38-1/8†	500	1.1	9.3*	2,100*
3775 or 3776 (With 2nd diskette)	48	35-1/2	38-1/8	500	1.2	10.7*	2,500*
	62	35-1/2	38-1/8†	575	1.2	10.7*	2,500*
3777  (With 2nd diskette)	48	30-1/2	29-1/8	395	1.7□	14.0□	3,600
	62	30-1/2	29-1/8	470	1.7□	14.0□	3,600
3203-3	56-1/4	20	46-1/4	860	1.9	5.3	6,200
3777 } 2502 }	48	30-1/2	45-1/8	505	1.7□	16.0□	4,500
3782 } 2502 }	30	21-1/4	45	185	0.8	7.5	2,100
2502 alone	30	14-1/2	16	110	0.2	2.1	480
3782 } 3521 }	30	21-1/4	47	135	0.7	6.0	1,650
3521 alone	26-1/2	20-1/2	14-1/2	70	0.5	4.0	900
3784	27	26-1/4	42-1/2	275	0.6	4.5	1,380
3411	31	27	39	325	1.2	5.8	2,200
3501**	21	10	10	25	0.3	2.0	300

**Legend:**

\*The maximum current (amperes) includes 2.0A for an attached 3501 Card Reader. This 2.0A does not contribute to the BTU rating of the unit.

\*\*Powered from 3771, 3774, 3775, or 3776

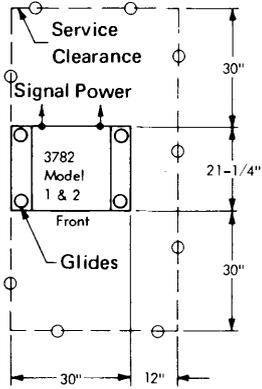
\*\*\*Side dimensions reducible to 29-1/2" by removal of keyboard cover, forms enclosure, and acoustic hood.

†Desk-top height is 29-1/8 inches.

□Includes some power to 3203-3 and 2502.

**IBM 3782 Card Attachment Unit Model 1 with 3521 Card Punch (Attaches to 3771, 3774, 3775, 3776 Models 3 or 4 and 3777 Model 3) or 3782 Mod 2 w/2502 Card Reader (Attaches to 3774, 3775 or 3776**

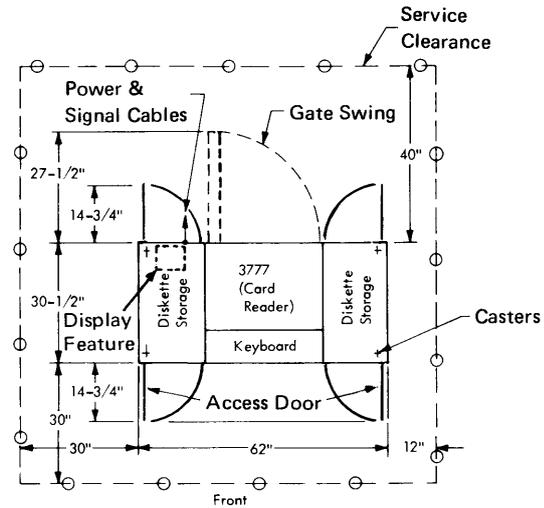
(Scale 1/4" = 1')



**IBM 3777 Communication Terminal**

Plan View - W/Second Diskette Storage Models 1, 2 and 3

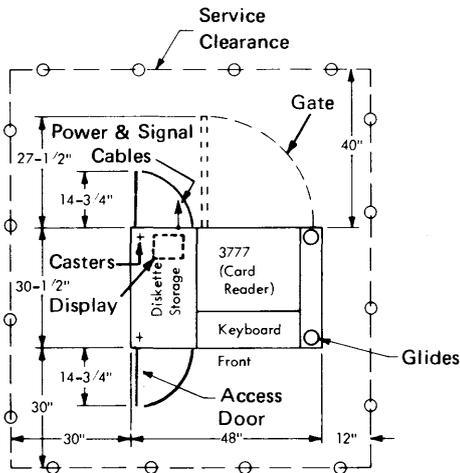
(Scale 1/4" = 1')



Note: Display is cable-connected to lower rear of console and may occupy any position on left end of 3777 Model 2 or 3.

**IBM 3777 Communication Terminal Models 1, 2, and 3**

(Scale 1/4" = 1')

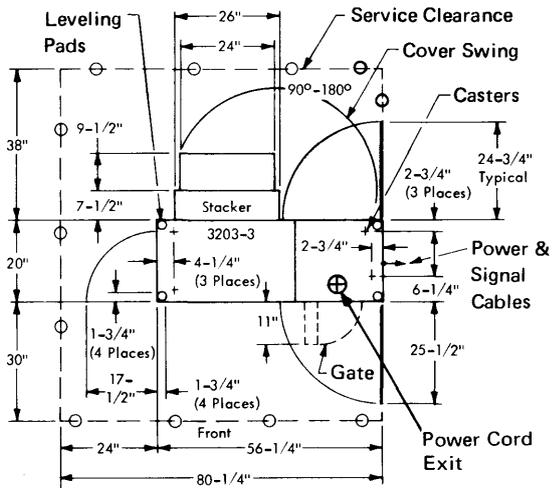


Note: Display is cable-connected to lower rear of console and may occupy any position on left end of 3777 Model 2 or 3.

**IBM 3203-3 Printer**

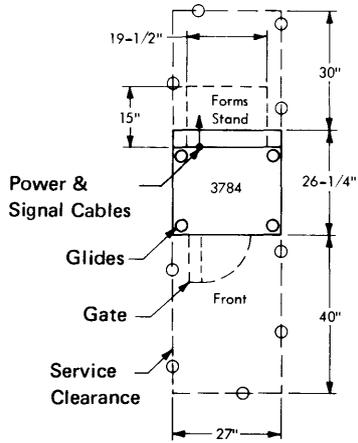
Plan View IBM 3203 Model 3 Printer

(Scale 1/4" = 1')



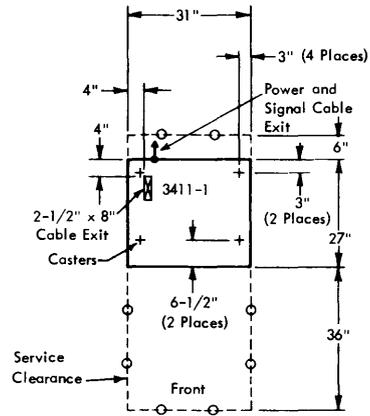
**IBM 3784 Line Printer  
(Attaches to 3774)**

(Scale 1/4" = 1')



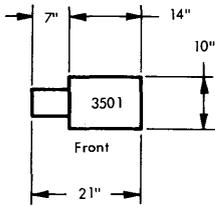
**3411 Magnetic Tape Unit and Control Model 1 (Attaches to 3776 Models 3 or 4 and 3777 Model 3)**

(Scale 1/4" = 1')



**IBM 3501 Card Reader (Attaches to 3771, 3774, 3775, or 3776 Models 1 and 2)**

(No scale)

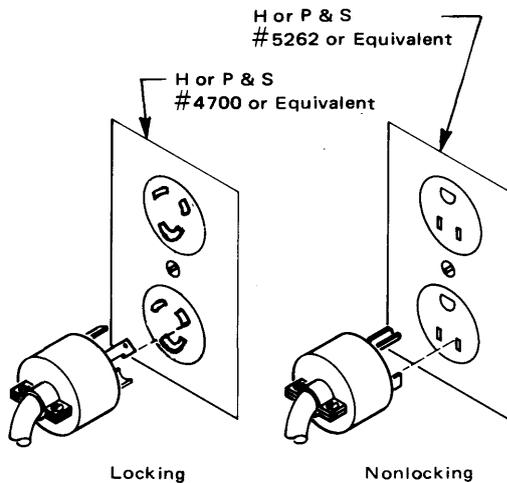


## Power Receptacle Requirements

A 115 volt, 15 ampere, single phase, 60 cycle *grounded* receptacle is required for the floor-mounted units of the 3770. (Except the 3777 and 3203, see page 27). The allowable tolerance is  $\pm 10\%$  on the voltages and  $\pm 0.5$  cycle in frequencies. For safety and proper machine operation each branch circuit must be grounded. A separate insulated grounding conductor is recommended.

*Note:* Multiple units in your system will require separate power receptacles. Recheck the style and quantity of attachment plug(s) ordered.

### DUPLEX RECEPTACLES – 115V, 15 AMP, 1PH – FOR ALL BUT 3777 AND 3203 UNITS.



**Locking and Nonlocking Plugs and Outlets**  
(H = Harvey Hubbell, Inc.)  
(P & S = Pass & Seymour, Inc.)

The maximum continuous current (in amperes) for each unit is listed in "3770 Data Communication System Unit Specifications" (see centerfold).

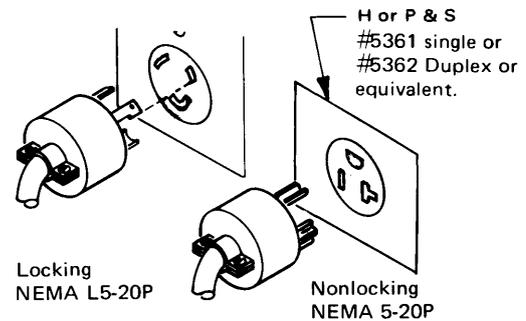
The 3501 derives power from the terminal (3771, 3774, 3775, or 3776) to which it is attached by a 12-foot interconnecting cable.

The 2502 and 3521 have no separate power cord; they are powered from the unit on which they are mounted.

It is recommended that you review the power requirements for each terminal location with your electrician to ensure that the proper circuit outlets are supplied in convenient locations.

### DUPLEX RECEPTACLE FOR 3777 MODEL 1, 2 115V, 20AMP, 1PH

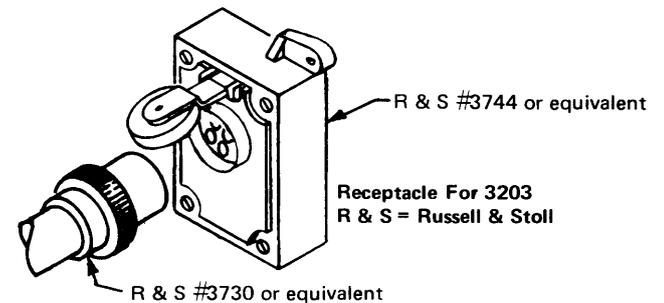
In raised floor installations, an above-floor location is recommended for this receptacle.



**Locking and Nonlocking Plugs and Outlets for 3777**  
(H = Harvey Hubbell, Inc.)  
(P & S = Pass & Seymour, Inc.)

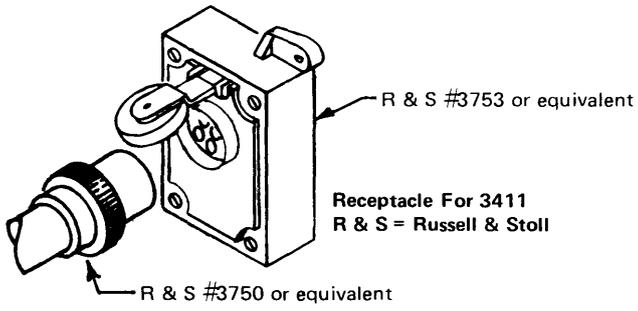
*Receptacle-* for 3203 Model 3 208/230V, 15 Amp, 3PH-

*Phasing* – Phase rotation must be: counterclockwise phase 1, 2, 3 from the ground pin looking at the face of the receptacle.



*Note:* Supply voltages, amperage and phasing are different for the 3777 and 3203.

**Receptacle-for 3411**  
**208/230V, 15 Amp, 1PH-**



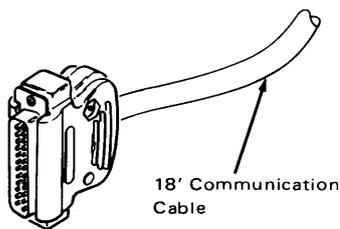
If communication services are required, one of two categories must be chosen: (1) Switched Telecommunication Network or (2) Private Line (Non-Switched) Voice-Grade or equivalent digital channels.

The required services may be obtained from your local communication company. Depending on the features you ordered for your communication terminal (3771, 3773, 3774, 3775, 3776 or 3777). You need to satisfy the requirements stated in one of the seven items (1) through (7) listed corresponding to the number checked in the Feature Checklist."

**"Feature Checklist."**

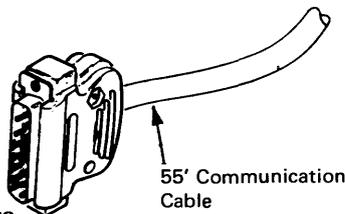
(1) External Modem

If you have specified item 1, external modem, the modem supplier will specify the required communication service and indicate the power required. If you have an IBM external modem and need additional information, contact your IBM marketing representative. If switched network backup is considered network control must be connected and disconnected by the operator (switched network backup auto answer is not supported). The cable and connector to the external modem are provided with the 3771, 3773, 3774, 3775, 3776 or 3777; the connector has an EIA interface. The modem connector must mate with the one shown in the illustration below.



**25-Pin Male Modem Connector**  
(Mates with Cinch or Cannon Type #DB19064-443 or equivalent)

(2) Data-Phone Digital Service Attachment Feature for the 3776 Model 3 or 4 and the 3777 Model 3.

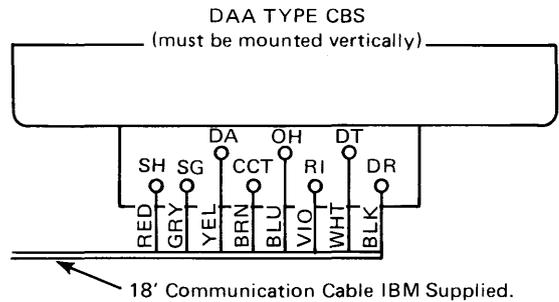


**15-Pin Male Modem Connector**  
Mates with Cannon Type DA15S or Equivalent.

(3) IBM Integrated Modem Switched Network with Auto Answer Feature (1200, 2100, or 4800 bps)

If you have specified item 3, order:

- a. A local loop for data use. (Specify the bit rate to be used.)
- b. A type CBS Data Access Arrangement (DAA). (CBS defines a specific type of attachment device.)



**Communication Connection for CBS Type Data Access Arrangement.**

The communication company installer *must* label the CBS device with the proper input transmit level (-db).

IBM provides the 18-foot cable with eight #8 spade lugs to be attached to the DAA device.

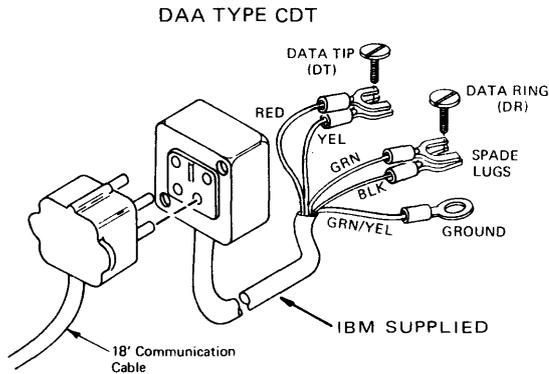
(4) IBM Integrated Modem Switched Network with Manual Answer Feature

If you specified item 4, order:

- a. A local loop for data use. (Specify the bit rate to be used.)
- b. A type CDT Data Access Arrangement (DAA). (CDT defines a specific type of attachment device.)

The communication company installer *must* label the DAA device with the proper input transmit level (-db).

IBM provides an 18-foot cable plus short adapter assembly with four #8 spade lugs (plus ground) to be attached to the DAA type CDT.



**Communication Connector for IBM 1200 bps Integrated Modem with Manual Answer Feature**

*Private Line (Nonswitched) Voice-Grade Channels*

*IBM Integrated Modem, 1,200, 2,400 or 4,800 bps*

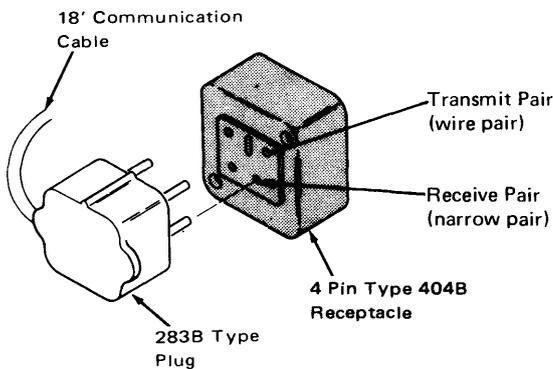
(5) Nonswitched Private Line Channel

If you specified item 5, order:

A type 3002 voice-grade channel with type C1 channel conditioning or equivalent. Ask for a type 404B receptacle or equivalent terminating arrangement.

If multipoint, the facility must be duplex, 4-wire for this channel at 4,800 bps and should be duplex, 4-wire at 1,200 or 2,400 bps.

If 1,200 bps point-to-point, a type 3002 voice grade channel or better is required (no conditioning required).



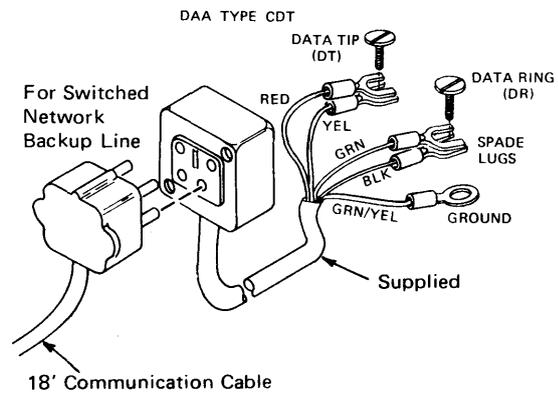
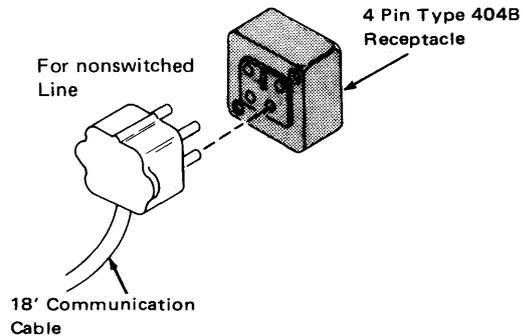
**Communication Connector for IBM Nonswitched Integrated Modem, (The customer must arrange for a type 404B, 548A, 549A, 493A receptacle or equivalent terminating arrangement to be installed.)**

(6) Nonswitched Channel with Switched Network Backup

If you specified item 6, order:

- a. A type 3002 voice-grade channel with type C1 channel conditioning or equivalent for the primary communications facility.
- b. A local loop for data use. (Specify the bit rate to be used).
- c. A type CDT Data Access Arrangement (DAA) for the switched line. (CDT defines a specific type of attachment device.)

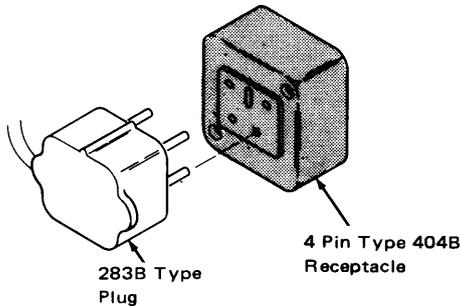
The communication company installer must label the DAA Device with the proper input transmit level (-db).



**Communication Connector for IBM Integrated Modem, 2400 or 4800 bps, with Switched Network Backup (You must arrange for a type 404B, 548A, 549A, 493A receptacle or equivalent terminating arrangement to be installed.)**

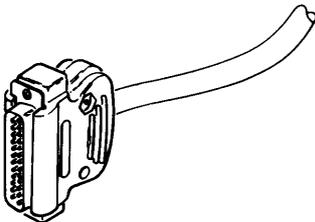
## Modem Fan-out

When the Modem Fan-out feature is used (3774, 3775, 3776 only) the basic machine integrated modem will dictate the type of communication service (speed, leased line, switched network backup). The connection to the communication service will be:



**Communication Connector for IBM Integrated Modem, and with Modem Fan-out Feature.**

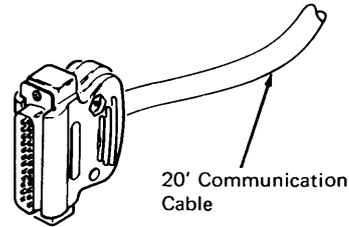
The attaching devices will provide the attaching cable assembly with the EIA interface connector (25 pin male modem style connector) illustrated:



- (7) IBM 3776 Models 3, 4 or 3777 with External Modem on Switched or Nonswitched Facilities.

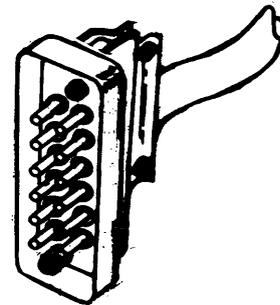
If you specified item 7, you will be attaching to an external modem or equivalent digital network interface device by one of the following:

- (7A) 3776 Models 3 or 4 and 3777 Models 1, 2, and 3 at rates of 2,400 bps to 19,200 bps The cable will have a EIA connector. This interface is also suitable for attachment to digital communication facilities.



**25-Pin Male Modem Connector  
(Mates with Cinch or Cannon Type #DB19064-443 or equivalent)**

- (7B) 3776 Models 3 or 4 and 3777 Models 1, 2, and 3 at 19,200 bps with High Speed digital interface. The cable will have a 12 pin connector.



**12 Pin Male Burndy Connector (Mates with Burndy Type #MD 12MXR-8T or equivalent)**

## HOST (COMPUTER) HOOKUP

Your installation planning should include contacting the administrator of the host (computer) system to schedule hookup and checkout of your terminal system.

You should discuss the following items with the host administrator:

1. Whether a run book is required at your terminal and, if so, when it will be available.
2. Whether the data communication adapters that are compatible with the 3770 will be installed and tested at the host site before installation of the 3770.
3. Whether the proper terminal ID addresses will be installed in the program before installation of the 3770.
4. Host site phone number \_\_\_\_\_  
Terminal Operator phone number \_\_\_\_\_

5. BSC Protocol

BSC Multipoint \_\_\_\_\_  
Terminal ID ALPHA \_\_\_\_\_  
"HEX" \_\_\_\_\_  
BSC Switched Network \_\_\_\_\_  
"HEX" \_\_\_\_\_  
BSC Switched NTWK ID Desired – No \_\_\_\_\_  
Yes \_\_\_\_\_

(Normally Not Required)

6. SNA Protocol

NRZI Encoding Yes \_\_\_\_\_

**SAFETY**

Safety is a major consideration in the design, engineering, and manufacturing of IBM products. The units of the 3770 system are listed by the Underwriters' Laboratory (UL).

Electrical grounding of 3770 units is essential for safety purposes. Be sure that your receptacles are properly grounded. If you have any questions about the grounding of your receptacles, contact your electrician.

**OPERATING ENVIRONMENT**

The 3770 is designed to operate under conditions typical of most commercial office environments. Except as noted below, it will operate satisfactory within the following ranges.

Temperature 50°F-105°F  
Relative Humidity 8% - 80%

The environment ranges for the 3777 operating with the 3203 must be.

Temperature 60°F-100°F  
Relative Humidity 8% - 80%

The environment ranges for either the 3776 Models 3 or 4 or the 3777 Mode 3, operating with the 3411, must be:

Temperature 60°F-90°F  
Relative Humidity 8% - 80%

When several units are to be installed in a room, the heat produced by the machines must be considered. Heat output of each unit is listed in "3770 Data Communication System Unit Specifications" in this publication.

In unusual cases, the effects of contamination in the air may make it necessary for you to provide filtering to remove particles of oil, grease, grit, or corrosive gases. If you have any questions concerning abnormal atmospheric conditions contact your IBM marketing representative.

**SUPPLIES**

The following supplies are used with the 3770 system:

- Ribbon—Black, IBM Part 1136653 or customer-selected equivalent, used by all serial printers (3771, 3773, 3774).
- Ribbon—Black, IBM Part 1136634 or equivalent, used by line printers 3775 and 3784. The 3776 uses IBM Part 1136670.

- Ribbon—Black, IBM Part 457938 or equivalent used by the 3203-3.
- Paper other than 3203 — Single-part continuous or multipart (six-part maximum) marginally punched and fanfolded. Maximum width is 15 inches. Units with variable-width forms tractors use paper with overall width of 3 to 15 inches.
- Paper — 3203, single part continuous or multipart (4 part maximum), marginally punched and fanfolded.  
Maximum Dimensions — Width 20"  
Length 24"  
Minimum Dimensions — Width 3.5"  
Length 3.0"

For additional information about forms design, consult *IBM Forms Design Reference Guide for Printers*, Order Number GA24-3488.

- 80-column cards-3-1/4 inch x 7-1/4 inch x 0.007 inch, for card readers and card punches.
- 51/80-column or 66/80-column cards-used in the 2502 Card Reader.
- Optical Mark Cards-used in the 2502 Card Reader with the 3782 Card Attachment Unit Model 2.
- Diskettes—IBM Part 2305830 or equivalent.
- Identification (ID) card—magnetically striped and encoded, and magnetic credit card 2-1/8 inch x 3-3/8 inch (0.007 to 0.045 inch thick) reading standard American Bankers Association numeric characters.
- Ink Roll—IBM Part 432695, used on the 3521 Card Punch.

Supplies are available from IBM or other suppliers. Contact your IBM marketing representative for these and other supplies used with 3770 system units.

**PAPER HANDLING**

Paper handling and storage should be considered with all printing units. The variable width forms tractor (optional on the 3771, 3773 and 3774) and the forms stand (optional on the 3771, 3773, 3774, 3775 and 3784) are effective aids in processing and handling multi- and single part forms in quantity.

## **SECURITY**

Because telecommunication terminals such as the 3770 units may have access to vital company records, consideration should be given to security of information and of the terminals.

Security keylock, diskette compartment locks, and magnetic stripe reader optional features may be ordered at additional charge from your IBM marketing representative. Door locks on the terminal room and control of the terminal identification (ID) are additional suggested precautions.

## **VOICE COMMUNICATION WITH HOST**

It is recommended that a separate telephone be available to talk with your central computer operator. This will assist in problem determination and performing daily job requirements.