HONEYWELL EDP

HARDWARE BULLETIN

SERIES 200

TYPE 285-5A COMMUNICATION ADAPTER UNIT

SUBJECT: Equipment Specifications for the Type 285-5A Communication Adapter Unit Used with Bell Pulse Code or Touchtone Automatic Calling Units.

SPECIAL INSTRUCTIONS: This bulletin supersedes the bulletin Type 285-5A Communication Adapter Unit published on November 3, 1965, File No. 112.0005.1619.00.00. The references used in this text are the bulletins entitled Type 286-1, -2 and -3 Multi-Channel Communication Controls, Order No. 160 and the Honeywell Series 200 Models 200/1200/2200 Programmers' Reference Manual, Order No. 139.

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EQUIPMENT SPECIFICATIONS FOR THE TYPE 285-5A COMMUNICATION ADAPTER UNIT

I. BASIC DEFINITION

The Honeywell Type 285-5A Communication Adapter Unit provides the interconnection of a Series 200 central processor and a remote terminal through a switched telephone network, as shown in Figure 1, page 2. The Type 285-5A accomplishes this interconnection in conjunction with a Type 286 Multi-Channel Communication Control. A Bell Pulse Code Automatic Calling Unit 801A1 (or 801A4) or a Bell Touchtone Automatic Calling Unit 801C1 (or 801C4) affords the interface of the Type 285-5A with the telephone line.

The automatic calling unit permits the central processor to select any number in a switched telephone or TWX network and to transfer the circuit to an associated dataset and associated Type 285 for automatic transmission of data.

II. INTERFACE

A. Type 285-5A Interface with a Type 286 Multi-Channel Communication Control. The interface is described in Section IV of the bulletin Type 286-1, -2 and -3 Multi-Channel Communication Controls.

B. Type 285-5A Interface with the Automatic Calling Unit

A Bell 801A1 (or 801A4) Pulse Code or Bell 801C1 (or 801C4) Touchtone Automatic Calling Unit terminates the common carrier switched-circuit service line. The automatic calling unit is connected to the Type 285-5A by a cable whose maximum permissible length is 50 feet.

III. AUTOMATIC CALLING UNIT/DATASET COMPATIBILITY

A. Automatic Calling Unit and Options

Table I, page 3, lists the numbers and types of automatic calling units together with the options associated with Type 285-5A operation.

The electrical interface and functional operation of the Type 285-5A and Bell 801 Series automatic calling units are identical for both the Bell Model 801A and 801C units. A functional difference does exist, however, between the Bell Models 801A1/801C1 and the Bell Models 801A4/801C4.

The Bell Automatic Calling Units 801A1 and 801C1 do not require that a unique end-of-number character be received from the attached Type 285-5A stating that no further digits are to be transmitted on the current call request. Bell Models 801A1 and 801C1 remain in control of the telephone line until the call connection is

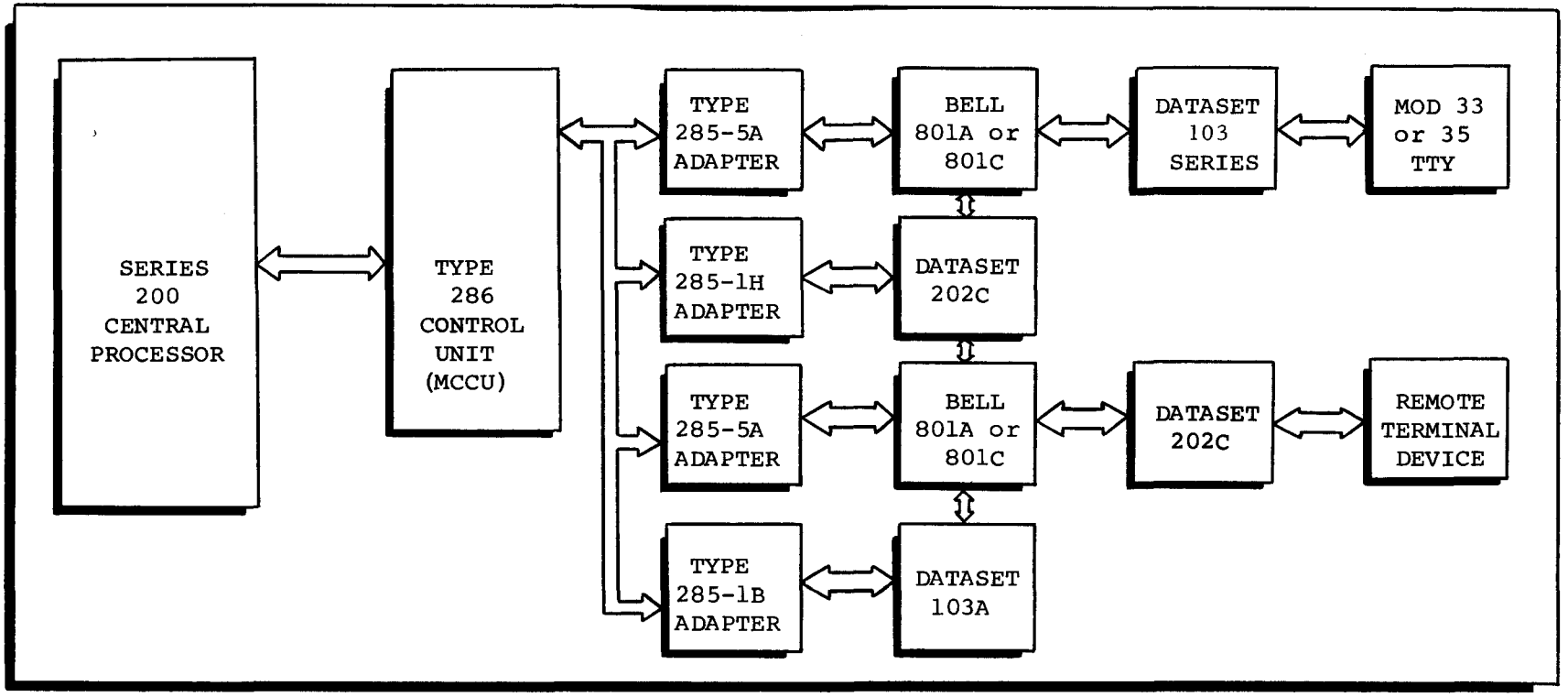


Figure 1. Typical Application of Type 285-5A Communication Adapter Unit

Table I. Automatic Calling Units and Options

MODEL NUMBERS	DIAL TYPE		OPTIONS*					
	Pulse Code	Touchtone	Answer Code Detection	End of Number	Z	Y	W	X
801A1	Yes	—	Yes	No	Yes	Yes	Yes	No
801C1	—	Yes	Yes	No	Yes	Yes	Yes	No
801A4	Yes	—	No	Yes	Yes	No	Yes	No
801C4	—	Yes	No	Yes	Yes	No	Yes	No

* The specified options are required for the listed automatic calling unit numbers.

successfully completed and the called dataset "handshake" signal has been recognized by the calling Model 801A1/801C1.

However, Bell Automatic Calling Units 801A4 and 801C4 do require that a unique end-of-number character be received from the Type 285-5A after the transfer of the last digit in the called number. This end-of-number character signals the Bell Model 801A4/801C4 to transfer the telephone line to the associated dataset. In specific cases, as with the Bell Datasets 103A and 811B, the called dataset "handshake" signal is recognized by the corresponding Bell Dataset 103A or 811B at the computer calling terminal.

B. Datasets

The following Bell datasets are presently compatible - or available in compatible form - with Bell Models 801A and 801C Automatic Calling Units:

Bell Dataset	Honeywell Communication Adapter
103A	285-1B, 1E, 1L
202C	285-1H, 1M, 2C
201A	285-2B, 2E
811B	285-1N
402C	285-3A
402D	285-4A

Both the dataset at the call originating terminal and that at the remote called terminal must be compatible with Automatic Calling Units 801A and 801C (see Figure 1, page 2).

Unless otherwise requested by the user, the Automatic Calling Unit 801C4 (Touchtone signalling, End-of-Number operational mode) should always be used in association with a Type 285-1N/811B combination where computer-controlled automatic call origination is required.

For all other applications involving use of a Type 285-5A and Bell Model 801A or 801C, preferably a Model 801A1 or 801C1 - as appropriate - should be used.

IV. CODE CHARACTERISTICS

The transmission mode between the automatic calling unit and the Type 285-5A is one-way, simplex. Information is transmitted from the Type 285-5A to the automatic calling unit by gated parallel transfer of a four-level BCD code. No fixed number of digits is transferred - only the number needed to establish the particular data call. This number may vary from one to a dozen or more, as required. Data transfer rate is a function of the dial-digit signalling speed and the common carrier central office equipment.

V. OPERATION

A. General

The automatic calling unit, upon initiation from the Series 200 central processor via the Type 286 and the Type 285-5A, performs all functions usually accomplished by an attendant in originating a data call. When the called station answers, the automatic calling unit detects the "answer back" tone, then transfers the telephone line to the dataset so that data transmission is achieved in the usual manner. The call is terminated in the manner prescribed by the particular dataset and remote terminal device. The Bell Telephone "Z" option available with the automatic calling unit is a requirement for terminating calls.

B. Abandon Call and Retry Timer

Each automatic calling unit available for use with the Type 285-5A is equipped with an adjustable timer having settings of 7, 10, 15, 24 and 40 seconds. The timer is designated Abandon Call and Retry (ACR); it activates the ACR lead if a specified event in the calling procedure does not occur within the selected time. When the Abandon Call and Retry lead is energized, the Type 285-5A generates an interrupt indicating the Abandon Call and Retry signal. The timer is reset and started after the completion of each event - as after each dial digit - in the dialing procedure.

The Type 285-5A also generates an interrupt when the telephone line has been transferred to the data mode, indicating an established call (that is, the dataset is in the data mode). This interrupt stops the Abandon Call and Retry timer and completes the action of the automatic calling unit. The call is then terminated by the associated dataset.

VI. PROGRAMMING REFERENCE DATA

A. General

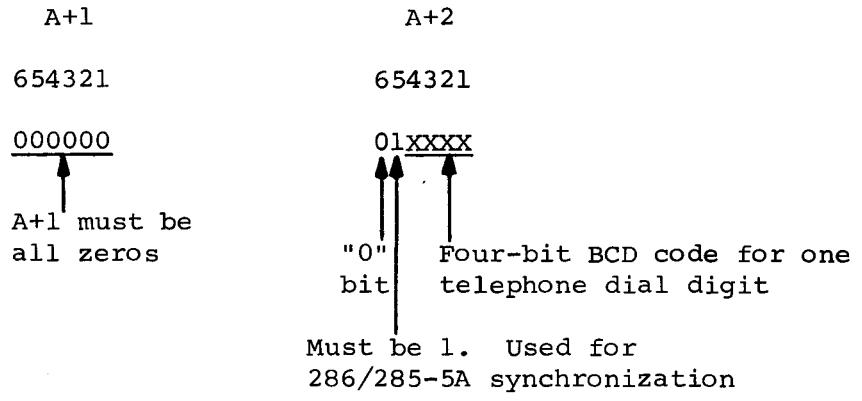
General information concerning the Series 200 Peripheral Data Transfer (PDT) instructions and Peripheral Control and Branch (PCB) instructions is contained in the Models 200/1200/2200 Programmers' Reference Manual. Information generally pertinent to the use of Peripheral Data Transfer and Peripheral Control and Branch instructions with the Type 285-5A Communication Adapter Units is given in the bulletin Types 286-1, -2 and -3 Multi-Channel Communication Controls, Section VI. The following additional information refers specifically to the handling of such instructions in the operation of the Types 285/285-5A. Figures 2 and 3 illustrate typical calling routines.

B. Dial Digit Code Handling

The PDT format used in the Types 286/285-5A application to transfer the dial digit code is as follows:

PDT	A	C1	C2

The following is the format of the dial-digit information contained in the A address specified by the PDT instruction:



C. Call Termination

After the "Control" PDT instruction is issued which defines the last digit character transfer, the line associated with the Type 285-5A changes into the receive mode. A subsequent interrupt initiated by the Type 285-5A results in the transfer of a special reply character - as shown in Table II, page 8 - for defining the status of the automatic calling units. On the "Transfer" PDT instruction, this reply character is placed into location A+2 of the central processor and "zeros" are placed in location A+1.

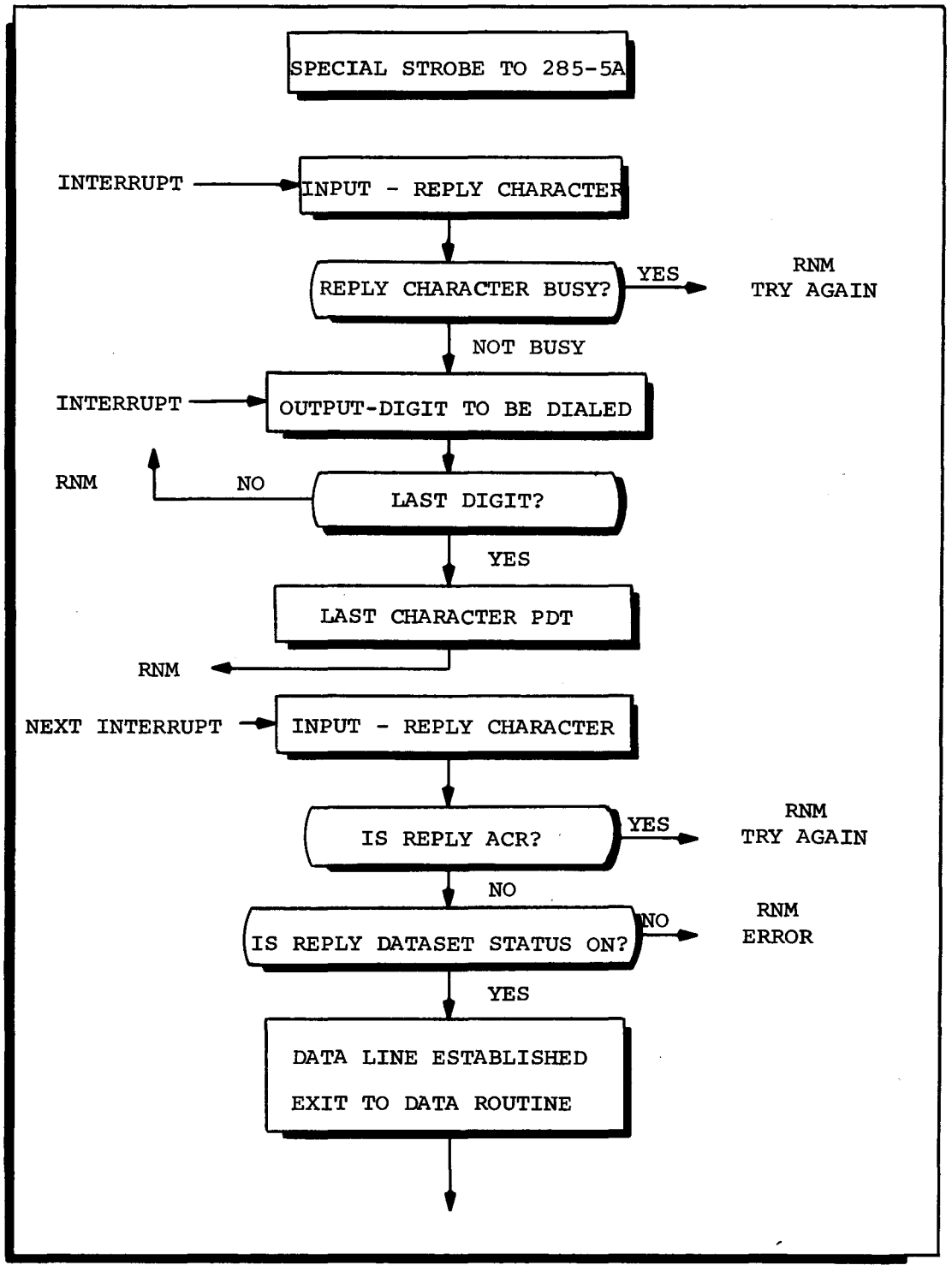


Figure 2. Typical Calling Routine for Types 286/285-5A/801A1/C1 Without End-of-Number Option

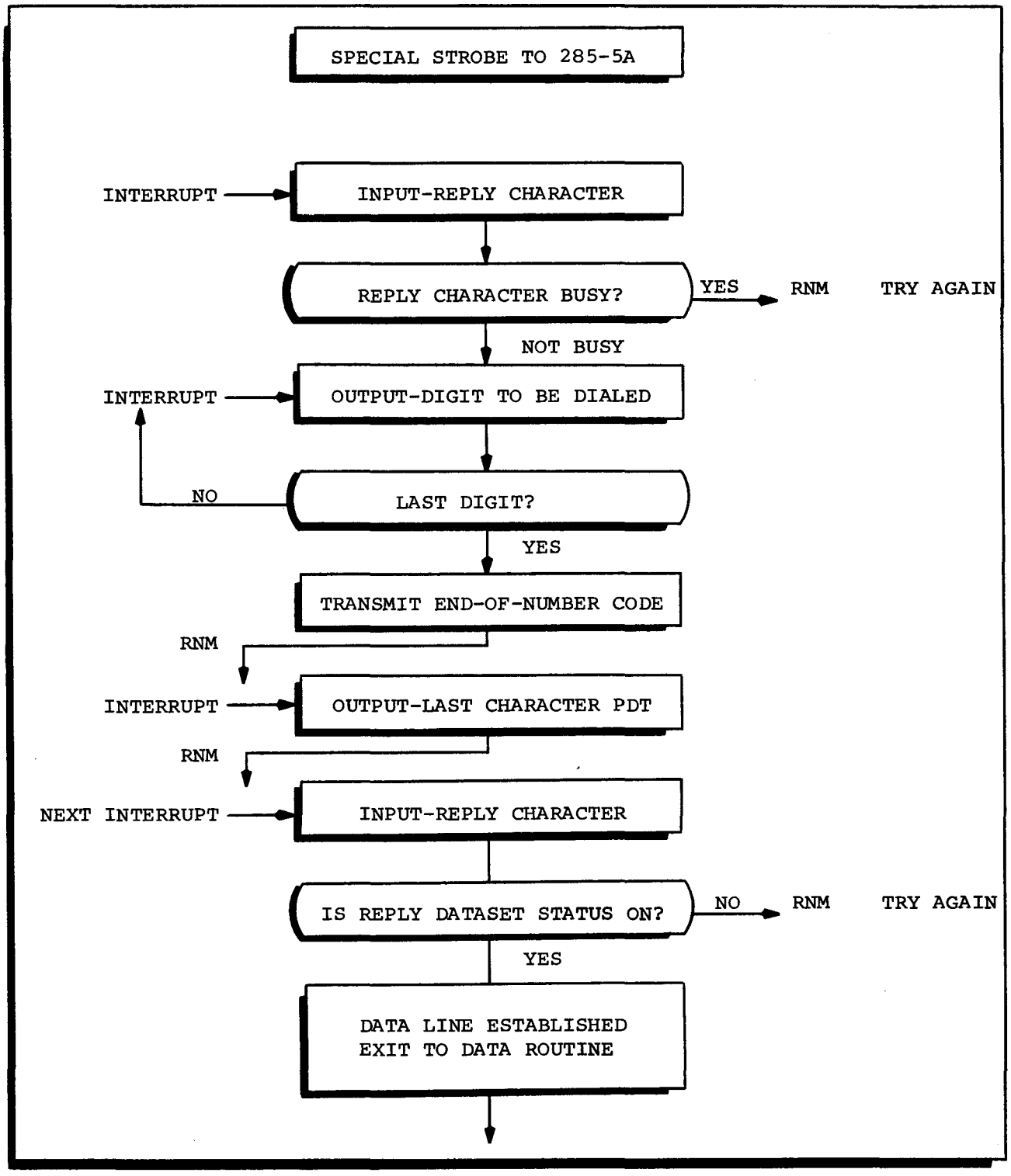


Figure 3. Typical Calling Routine for Types 286/285-5A/801A4/C4 With End-of-Number Option

Table II. Special Reply Character

CHARACTER	DESCRIPTION	OCTAL CONFIGURATION
ACU is "ready"	Power is ON in the automatic calling unit; the telephone line is not is use, and the ACU is in the test mode.	000XX1
ACU is "busy"	Either the power is OFF, the telephone line associated with the ACU is in use, or the ACU is in the test mode.	000XX0
Dataset is ON	This character indicates that the dataset has been switched to the data mode. A "one" indicates an established call; a "zero" indicates that the dataset is not in data mode.	000X1X
Abandon Call and Retry	An event has not occurred within the desired time, for example, a line is "busy" or a wrong number has been dialed. The call is incomplete.	0001XX

The minimum time interval following the last digit transfer and the interrupt for call establishment is a function of the dial digit signalling speed and common carrier central office equipment. The maximum time interval corresponds to the setting of the Abandon Call and Retry timer (see Section V).

D. Control Strobe

A "Control" PDT instruction containing the special strobe bit configuration, octal 34, can be used to interrogate the state of the automatic calling unit. The interrupt initiated by the Type 285-5A subsequent to this instruction results from the transfer of the reply character to the Type 286.

VII. END-OF-NUMBER OPTION

When the End-of-Number option is included in the calling unit, a special end-of-number character - octal 14 - must follow the last dial digit. This character terminates the dialing procedure, but not the operation of the automatic calling unit.

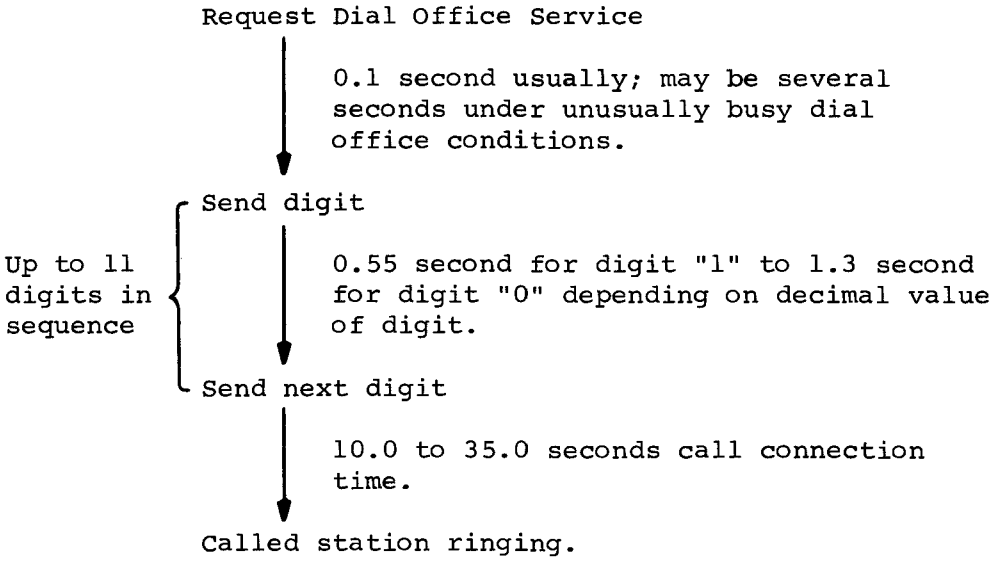
VIII. TIMING OF DIALED CALL CONNECTIONS

A. Pulse-Code Signalling Automatic Calling Units

Bell automatic calling units of the pulse-code signalling type - that is, Bell Models 801A1 and 801A4 - are used where access to

the telephone switched circuit is via a pulse-code operating dial exchange office.

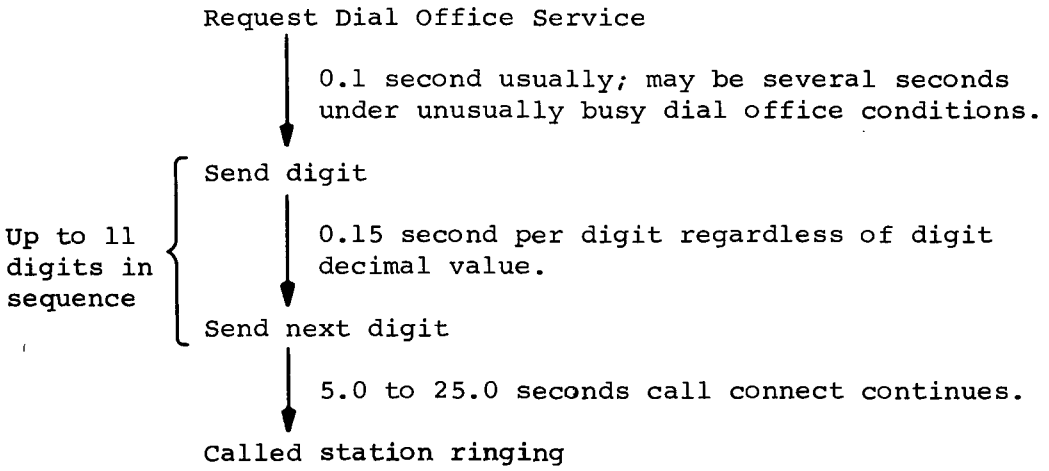
Typical call-originate dialing and telephone plant call-connection times via impulse-signalling telephone dial exchange offices are as follows:



B. Touchtone Signalling Automatic Calling Units

Bell automatic calling units of the Touchtone signalling type - that is, the Bell Models 801C1 and 801C4 - are used where access to the telephone or TWX switched circuit is via a Touchtone operating dial exchange office.

Typical call-originate dialing and telephone plant call-connection times via Touchtone-signalling dial exchange offices are as follows:



IX. MAINTENANCE FACILITIES

The Type 285-5A has no maintenance panel, indicator lights or switches.

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Type 285-5A
Communication Adapter Unit
Hardware Bulletin

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ERRORS NOTED:

Fold

Cut Along Line

SUGGESTIONS FOR IMPROVEMENT:

Fold

FROM: NAME _____ DATE _____

COMPANY _____

TITLE _____

ADDRESS _____

_____

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