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IBM 3944 Dial Terminal

The IBM 3944 Dial Terminal is designed to be used as an input device to Audio Response Units through a telephone network.

The IBM 7772 Audio Response Unit is an input/output unit of the IBM System/360 Models 30, 40, 50, 65, and 75, interfacing the computer and a telephone network. The Audio Response Unit provides, under program control, composed messages of spoken words in response to digital inquiries or input messages. Except for the use of digital language from the calling to the called line, communication between remote inquiry terminals and the Audio Response Unit is conducted in the same manner as an ordinary telephone call.

**FOR USE IN
READING ROOM ONLY**

This publication is a major revision of IBM 3944 Dial Terminal Unit, Form A19-0010-2, and obsoletes it.

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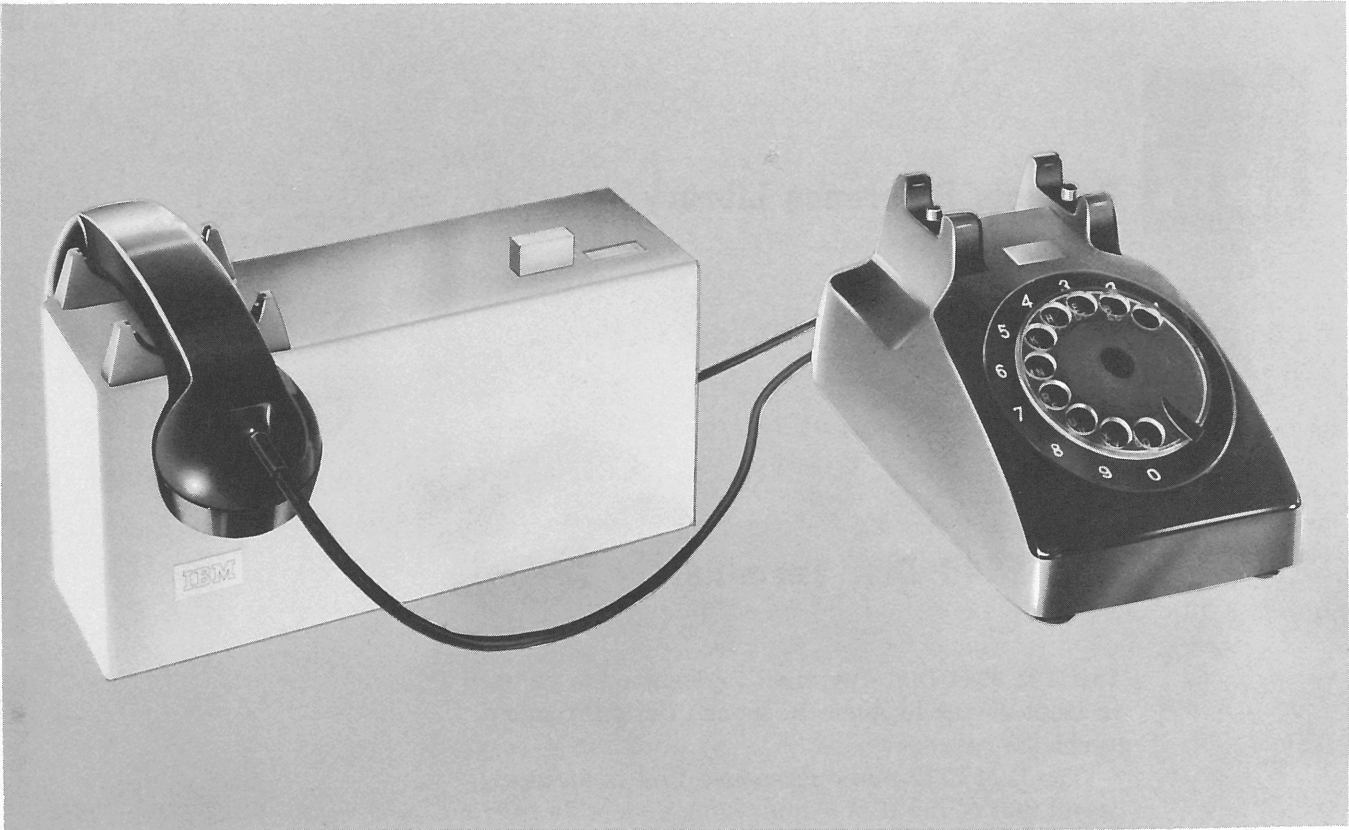


Figure 1. IBM 3944 Dial Terminal with Telephone Set 01620

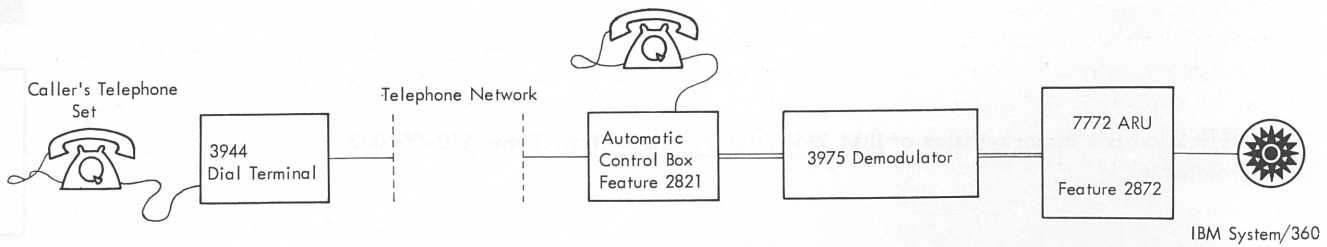


Figure 2. Schematic of Network Units 01621

INTRODUCTION

The IBM 3944 Dial Terminal (Figure 1) permits the use of a standard telephone set as an inquiry terminal connected to the IBM 7772 Audio Response Unit (ARU) through public switched telephone networks and/or through private branch exchange networks.

Due to this new concept in Tele-processing a low-cost terminal becomes available wherever a telephone set exists.

The 3944 Dial Terminal is connected between the telephone line and the standard rotary-dial telephone set, which requires no modification. A talk/data pushbutton on the 3944 permits normal use of the telephone set in the talk position and makes it possible to use the rotary dial as a digital transmitter in the data position. In the data position, the operation of the rotary dial controls audio-frequency signals which can be transmitted over any telephone network. At the receiving end an IBM 3975 Demodulator (or equivalent) with its associated control box is required to convert the received audio signals into contact closures, which are interpreted by the 7772 Audio Response Unit (Figure 2).

The 7772 requires the Dial Terminal Feature (#2872) to accommodate these signals.

The 3944 Terminal is suitable for many kinds of in-plant or out-plant operations as an inquiry terminal, and can also be used for file-updating and data-gathering applications.

GENERAL DESCRIPTION

DIAL TERMINAL

The 3944 Dial Terminal comprises essentially the following parts:

1. Two oscillators, the frequencies of which are controlled by the telephone set's rotary dial contact.
2. A talk/data pushbutton, which permits:
 - on the talk position, the normal operation of the telephone; dialling and listening (the line is directly connected to the telephone set).
 - on the data position, the generation of audio signals which are transmitted to the telephone through a line transformer.
3. An indicator, which monitors both the battery voltage and the operation of the oscillators.

These parts are enclosed in a moulded plastic box which is fitted externally with a cradle for the

telephone handset. The talk/data switching mechanism becomes unlocked when the handset is placed on the cradle.

It is not necessary to modify the telephone set unless it is used in connection with a 3975 Demodulator and the dialling speed of the telephone is higher than 13 pulses/second. This limitation is due to the 3975 and not to the 3944.

POWER SUPPLY

The 3944 Dial Terminal is powered by two standard 9-volt batteries connected in series. Power is used only when the 3944 is switched to the data position.

Type of Batteries

Use only dry cells, Type 6 F50-2, as defined by IEC recommendations.

Battery Connector Features

To permit the use of two different 9-volt batteries, the customer has a choice of two battery connectors at no extra charge:

Feature #2954 for snap connector

Feature #2955 for plug connector.

OPERATING MODE

The operator dials the telephone number of the data processing center and, as soon as the connection is established, he places the handset on the terminal cradle and presses the talk/data pushbutton. Input data can then be entered by way of the telephone dial. Only numeric data can be transmitted. When the data has been entered, the operator takes the handset off the cradle. This action automatically releases the talk/data pushbutton which switches back to the talk position. The operator then listens for the audio answer from the processor.

An input message is completed when the input section circuitry in the 7772 receives no data for five consecutive seconds. The system is then activated.

In the response, all the input data is repeated to the operator in audio form, thus providing a complete check.

During the data input operation, the indicator is normally on (indicating in the white area); it is off (red area) if the battery voltage falls below a critical value or if either or both oscillators are out of operation.

TRANSMISSION MODE

When the talk/data pushbutton is switched to the data position, the terminal sends two frequencies: A0 and B0 (Figure 3). While the dial is being operated, the impulsing contact openings cause these frequencies to be changed to A1 and B1. These frequencies are mixed linearly and are delivered to the line transformer coupled to the telephone line.

The combination of A1 and B1 frequencies corresponds to digit "1" in the IBM 1001 code. Thus, at each opening of the dial contact, a "1" is decoded by the 3975 Demodulator and delivered to the 7772 ARU.

DIAL TERMINAL FEATURE (#2872)

This feature is required on the 7772 when the 3944 Dial Terminal is used. The feature performs the following functions:

1. End-of-character recognition, based on the fact that the time-interval between two dial contact openings of the same digit cannot exceed 130 milliseconds.
2. Determination of the transmitted digit by counting the number of "1"s received from the 3975.
3. Translation into computer code.

A Dial Terminal Feature is required on each group of two input lines devoted to dial terminal operation.

PHYSICAL PLANNING CONSIDERATIONS

DIMENSIONS

The dimensions of the 3944 Dial Terminal are as follows:

Width	250 mm	9-7/8 inches
Depth	85 mm	3-3/8 inches
Height	120 mm	4-3/4 inches
Weight (approx)	2 kg	4 pounds

ENVIRONMENTAL REQUIREMENTS

Temperature	10° to 43° C (50° to 110° F)
Relative Humidity	10 to 80 percent

CONNECTIONS

The telephone line and the telephone set wires are connected to the Dial Terminal by screw connectors.

REFERENCE MATERIAL

The reader is referred to the publications pertaining to the Audio Response Unit that are listed in System/360 Bibliography, Form A22-6822, to IBM 7772 Audio Response Unit with IBM System/360, Form A22-6836, and to IBM 7772 Audio Response Concepts and Vocabulary, Form A22-6847.

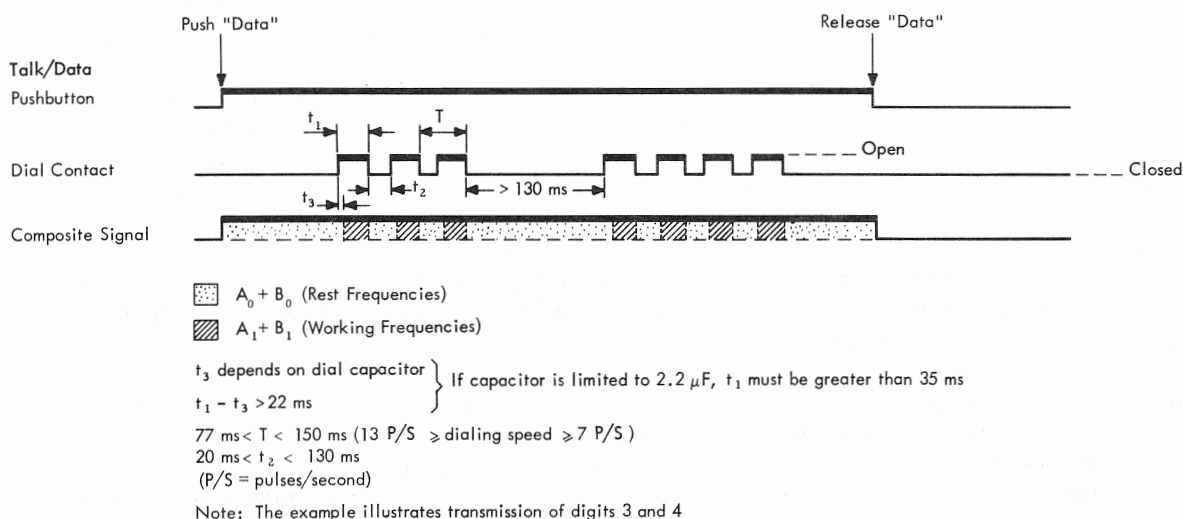


Figure 3. Timing Chart 01619