

*MRT. 1962*

IBM  
ACCOUNTING MACHINES

CUSTOMER ENGINEERING MANUAL OF INSTRUCTION

ELECTRIC PUNCH

TYPE 011

INTERNATIONAL BUSINESS MACHINES CORPORATION  
NEW YORK, NEW YORK

## CONTENTS

	Page
INTRODUCTION .....	1
OPERATION .....	2
MECHANICAL AND ELECTRICAL PRINCIPLES .....	8
Essential Elements of a Punch .....	8
Selecting the Punch .....	8
Interposer Locks .....	12
Card Rack, Dog and Escapement .....	12
Rock Shaft Assembly .....	13
Space Key .....	14
Release Key .....	14
T Lever .....	14
Main Spring Governor .....	14
REMOVAL PROCEDURES .....	16
Procedure for Removing Key Assembly .....	16
Procedure for Removing Key Assembly and Mechanism Holder .....	17
Procedure for Removing an Interposer .....	18
ADJUSTMENTS .....	19
Main Spring .....	19
Dog Carrier .....	19
Skip Lifter Position .....	19
Toggle Link .....	20
Magnet Yoke .....	20
Bell Crank Eccentric Screws .....	21
Armature Back Stop .....	21
Punch Magnet Contact .....	22
Circuit Breaker .....	22
Escapement .....	23
Space Bar Adjusting Screw Block .....	23
Space Bar Adjusting Screw .....	23
Space Bell Crank .....	23
Card Punching Registration .....	23
Rack Stop, Left .....	23
Rack Stop, Right .....	23
CIRCUIT DESCRIPTION .....	24
Selenium Rectifier .....	24
LUBRICATION PROCEDURE .....	26

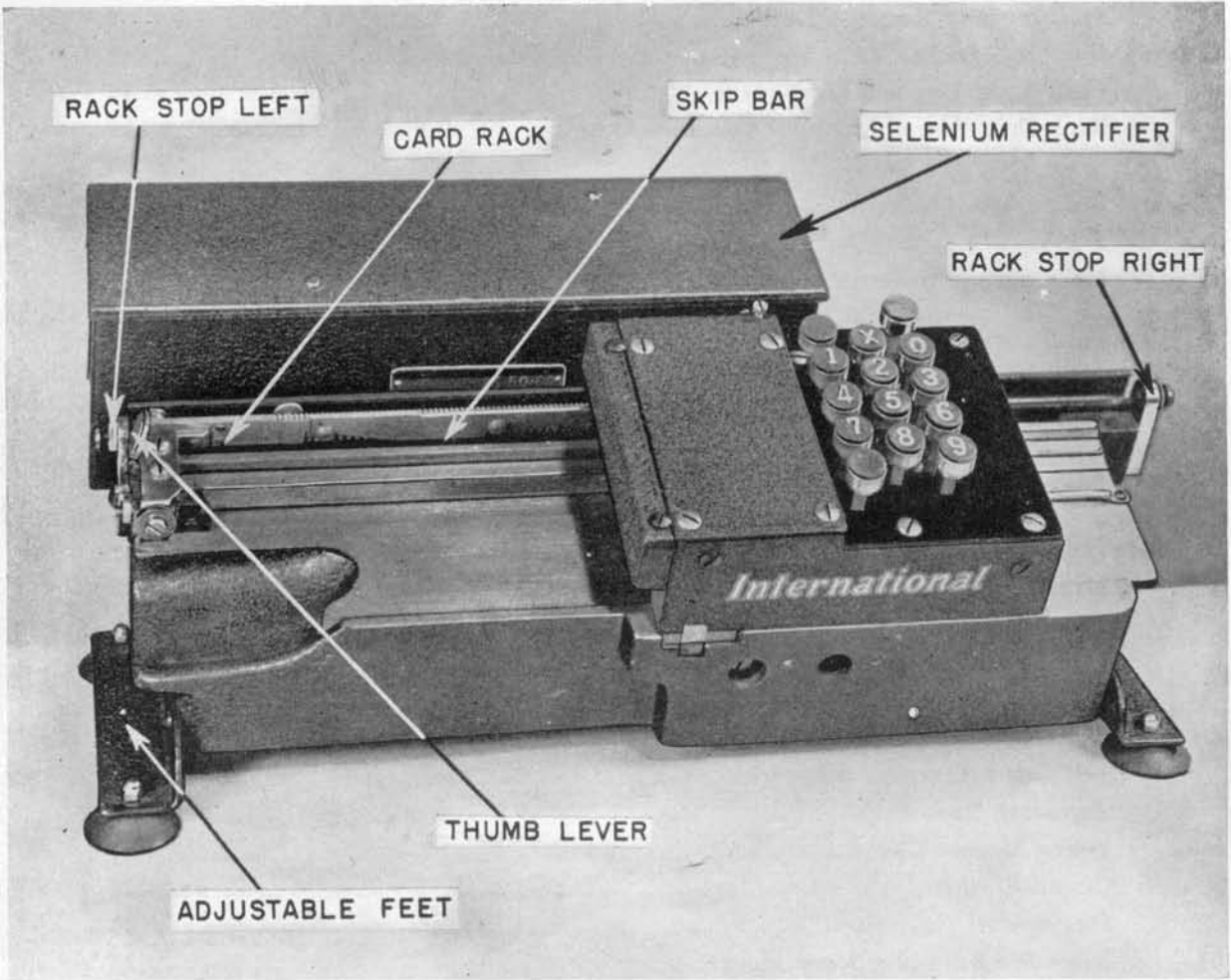


Figure 1

# THE IBM ELECTRIC PUNCH TYPE 011

## INTRODUCTION

The IBM Electric Punch provides the means of transcribing information from original documents to IBM cards. It establishes the records to be handled by all other IBM Accounting Machines; therefore, the part that it plays is of utmost importance in the IBM Accounting method.

The principal features of the Type 011 Electric Punch are illustrated in Figure 1.

Figure 2 shows a close-up of the keyboard. The space key is located near the front of the keyboard. Each depression of the space key moves the rack one column to the left, without punching a hole in the card.

At the rear of the keyboard is the release key. When the release key is depressed, the rack is released by the escapement mechanism and moves to its extreme left position.

The other keys on the keyboard are the twelve punching keys, 0 to 9 inclusive, X and 12. The 12 key is the unmarked key just to the left of the X key. As any one of these keys is depressed, a corresponding hole is punched in the card, and the rack spaces one column toward the left. Power for both of these functions is furnished by an electromagnet, energized by the depression of the key. Thus, when operating these twelve punching keys, the operator merely closes a contact to energize the magnet and makes selection of the proper punch pin. All other power is furnished by the electromagnet. The IBM Electric Punch, therefore, requires very little manual effort to operate.

Interlocks prevent depression of more than one of these punching keys at one time. The machine may be specified to operate from one of the following four power supplies: 110 D. C., 220 D. C., 110 A. C., and 220 A. C.

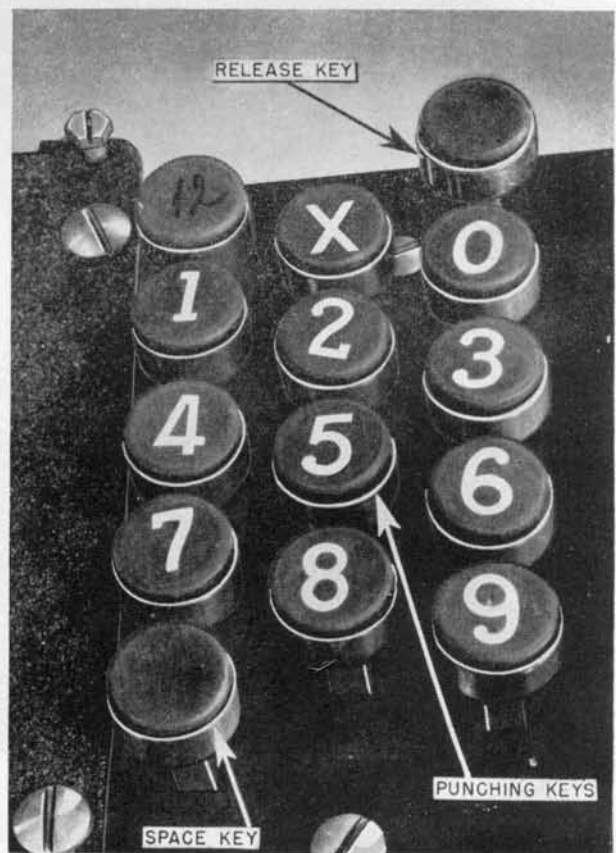


Figure 2

## OPERATION

With the rack released to its extreme left position, insert a card in the machine, face up, with column No. 1 at the left. Be certain that the left end of the card is under the retainer on the card feeder assembly, left (Figure 3). Using the thumb lever at the left end of the rack, push the card to the right until column No. 1 is under the die. There is no main line switch on the machine; punching may begin as soon as the machine is plugged into an outlet of the proper power supply.

The machine is operated by the right hand with the touch system. The index finger operates the 12, 1, 4, and 7 keys; the middle finger the X, 2, 5 and 8 keys; and the ring finger the 0, 3, 6 and 9 keys.

The operator should sit in a position and at a height so that the fingers of the right hand easily reach all of the keys. Adjustable feet make it possible to tilt the machine at an angle best suited to the operator.

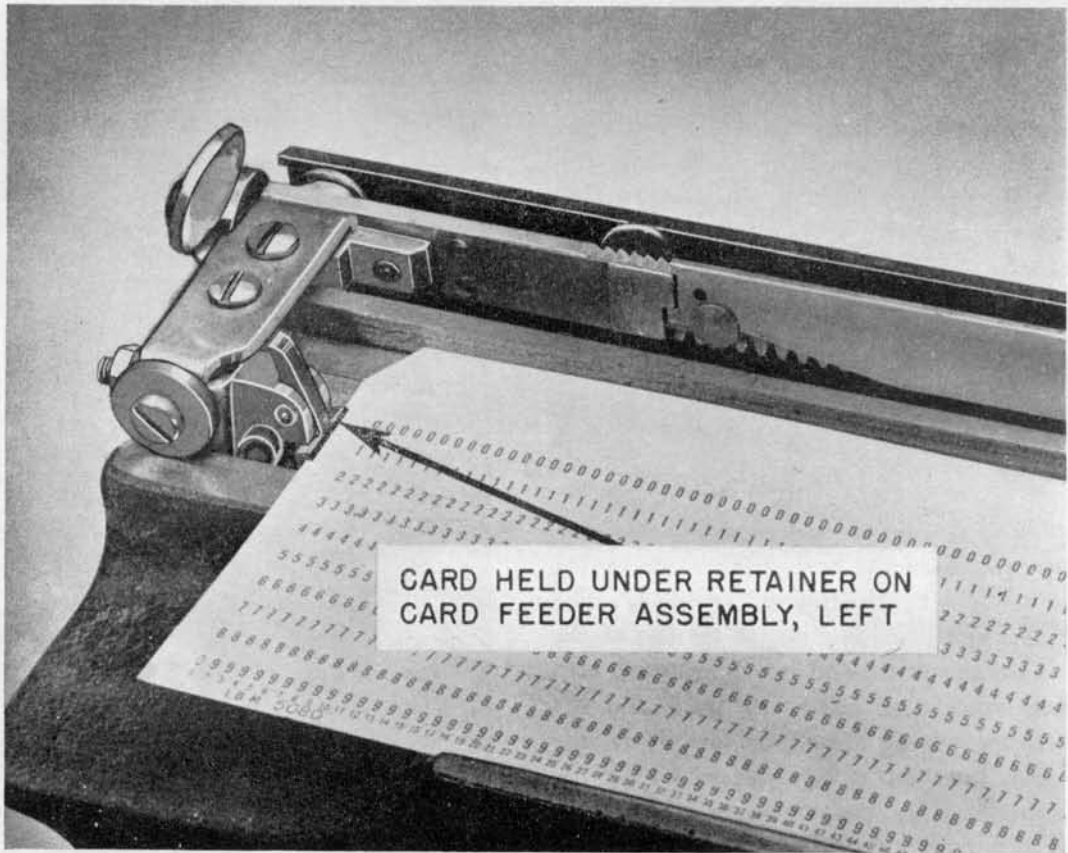


Figure 3

The X key, in addition to punching a hole, performs a special function known as X skipping, which may be likened to tabulation on a typewriter, that is, skipping from within a given field to a predetermined point or column. This skipping is under control of the X key together with a skip bar. Generally speaking, separate skip bars are required for each design of card with a different arrangement of fields. Figure 4 shows the method of inserting a skip bar in the rack of a key punch.

Depression of the X key punches a hole in the X position of the card and operates the escapement mechanism for one space, as does any other punching key, but in addition, it operates the skip lifter, causing it to project above the skip bar. This results in skipping, provided a skip bar is in the rack and is cut to effect a skip on the particular column involved. The depression of any other punching key or the space key retracts the skip lifter to its normal position.

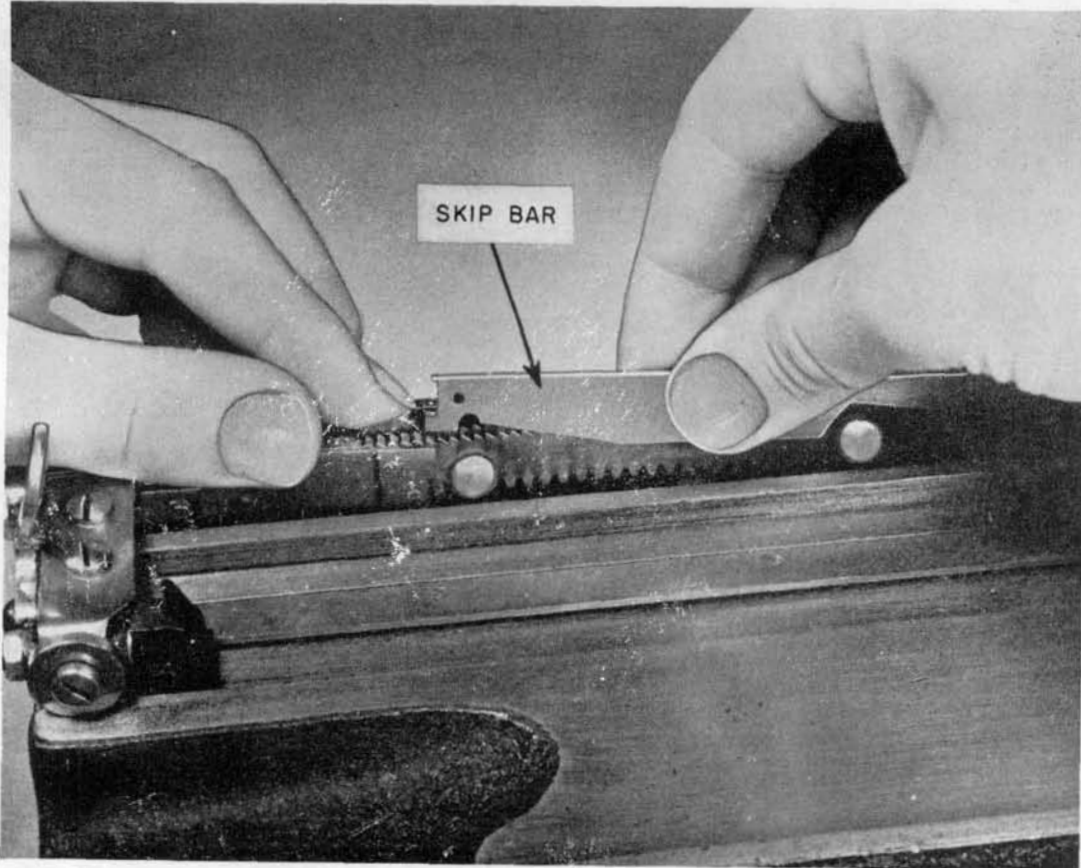


Figure 4

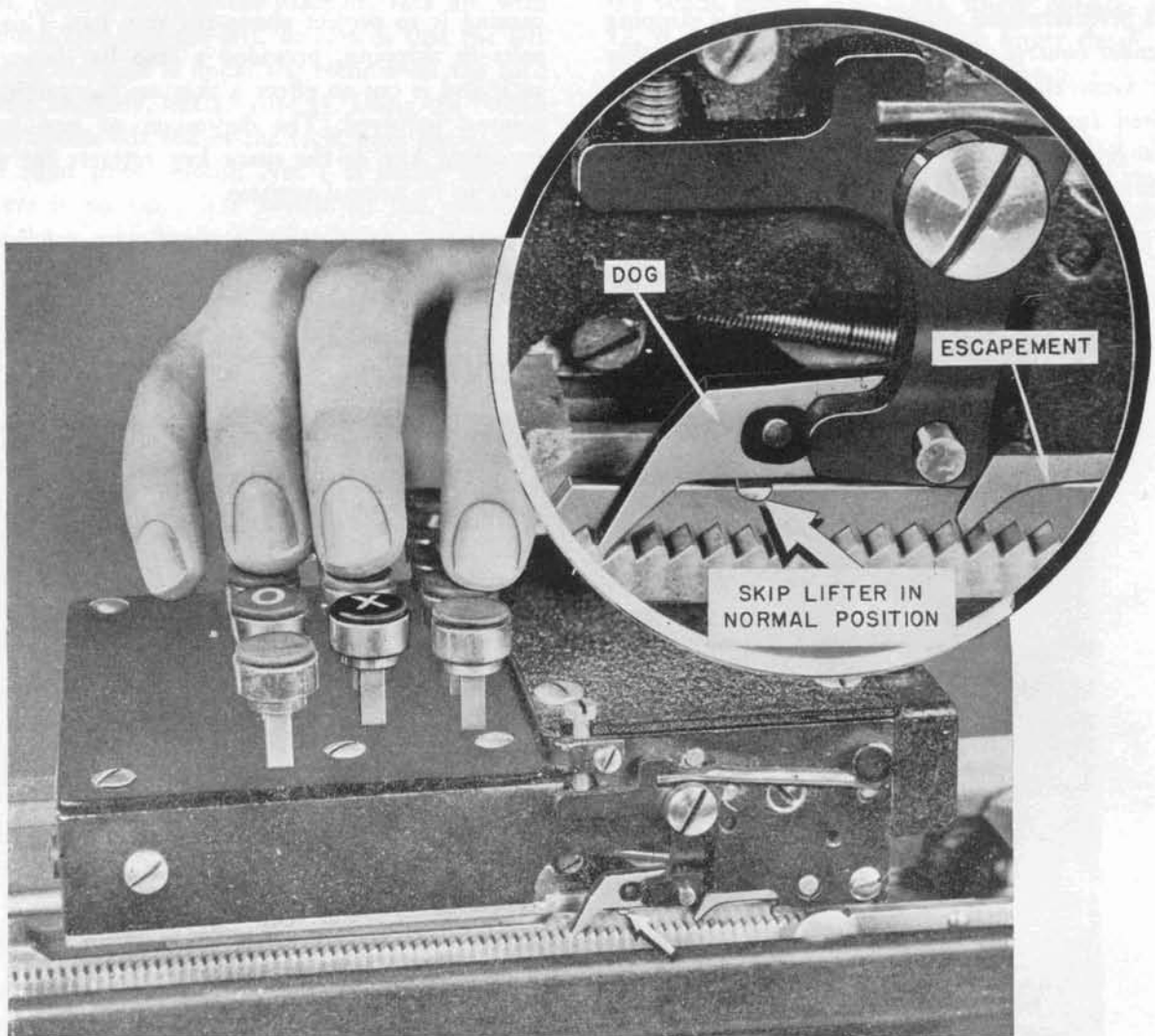


Figure 5

Figure 5 indicates the escapement mechanism and shows the skip lifter in the normal position before depression of the X key.

Figure 6 shows the skip lifter after depression of the X key. Note that this has caused it to project farther from the machine. Note, also, that the

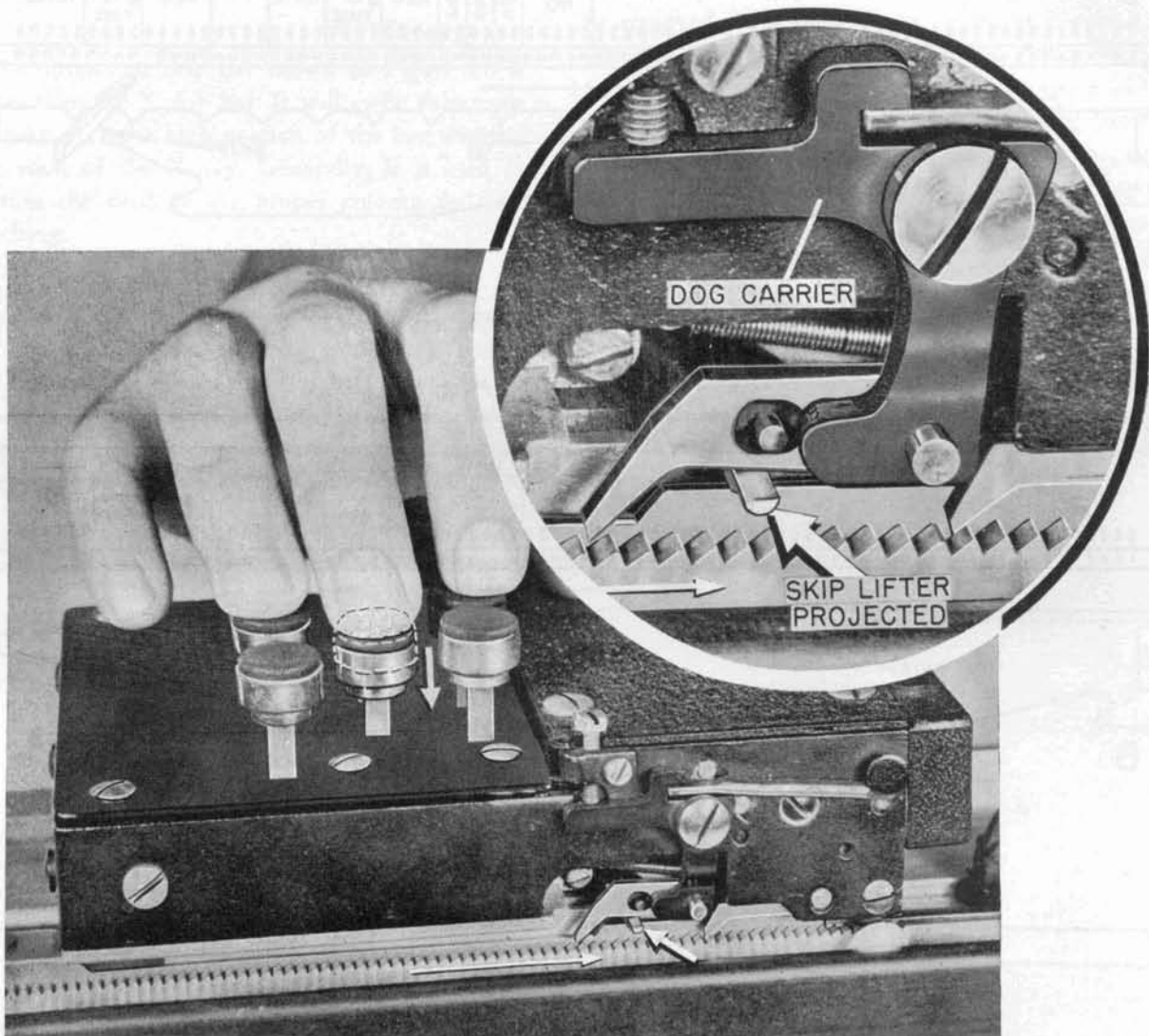


Figure 6

portion of the skip lifter now above the skip bar is thicker (vertically) than in Figure 5, thus lifting the dog from the rack teeth. The rack will, therefore, begin its skipping and will continue until the

first low cut in the skip bar permits the skip lifter to drop, thus allowing the dog to engage the rack teeth again. This stops the rack in position to continue the punching.

















































