

**Chapter
2**

**DEVICE
INPUT FORMAT
AND DEVICE
OUTPUT FORMAT**

*Get on the
Fast Track!*



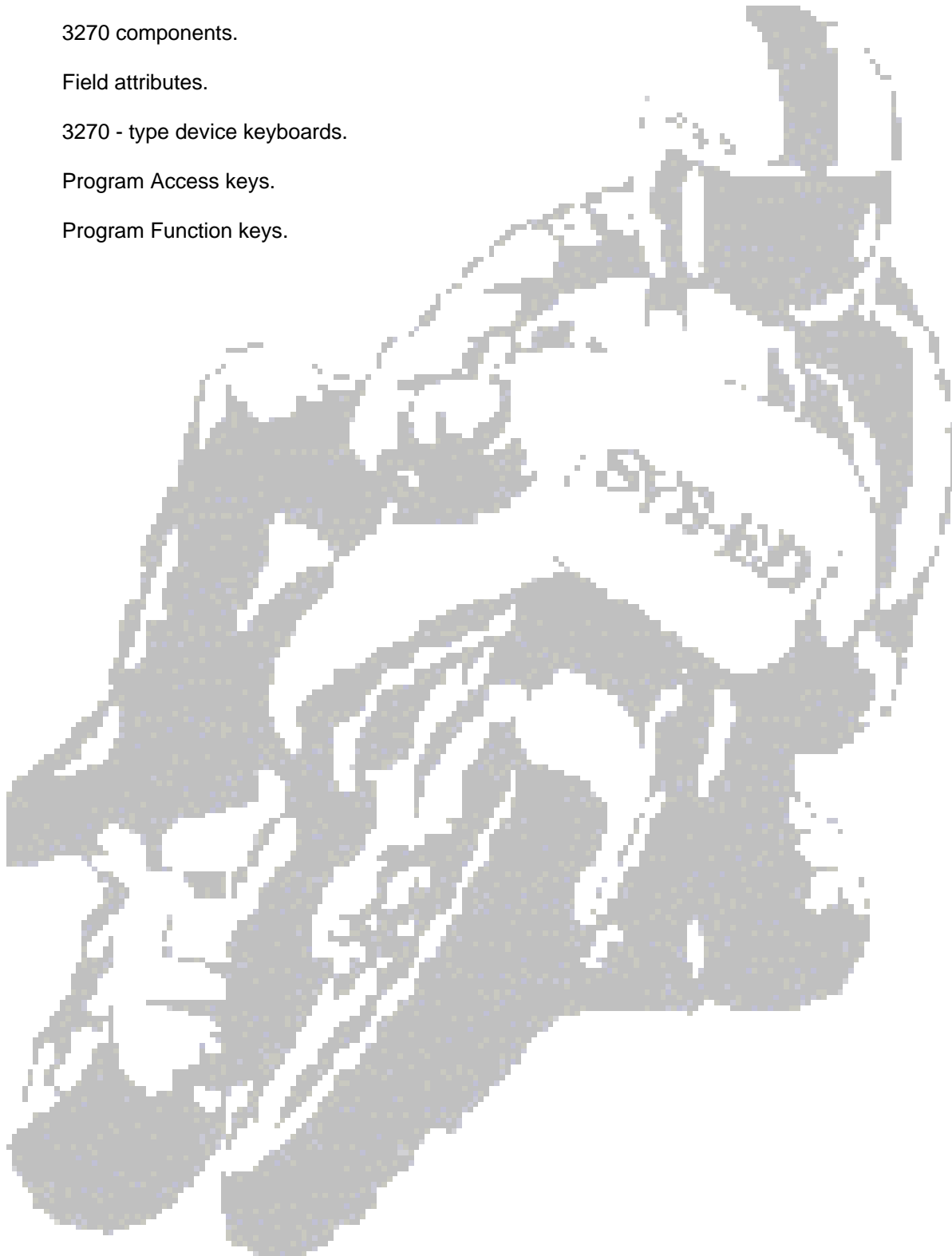
TM

**SYS-ED/
COMPUTER
EDUCATION
TECHNIQUES, INC.**

Objectives

You will learn:

- C 3270 components.
- C Field attributes.
- C 3270 - type device keyboards.
- C Program Access keys.
- C Program Function keys.



1 3270 Components

Control unit

- C Interface between cpu and terminal devices.

Display device

- C Displays data transmitted from computer.
- C Allows data to be entered and changed.
- C One or more attached to one control unit.
- C 3275 has built-in control unit.

Printer

- C Attached to same control unit as associated display device.
- C Provides hard copy of displayed data.

2 3270 - Type Device Facilities

Field Orientation

- C The field is the smallest addressable data item. Every location on screen belongs to some field.
- C Any screen positions not described by a programmer are assigned a default field by MFS.

Field Characteristics

MFS requires three characteristics:

- C Starting address.
- C Length.
- C Attributes.

2.1 Field Attributes

Each field starts with attribute byte which specifies characteristics of the field:

- C protected/unprotected
- C intensity (off/normal/bright)
- C alpha/numeric
- C selector pen detectable
- C modified data tag (on/off)

Field characteristics are represented in the bit configuration.

An attribute byte takes a position on screen, but is not displayed.

Position (1,1) is always the attribute byte.

3 3270 - Type Device Keyboards

Typewriter

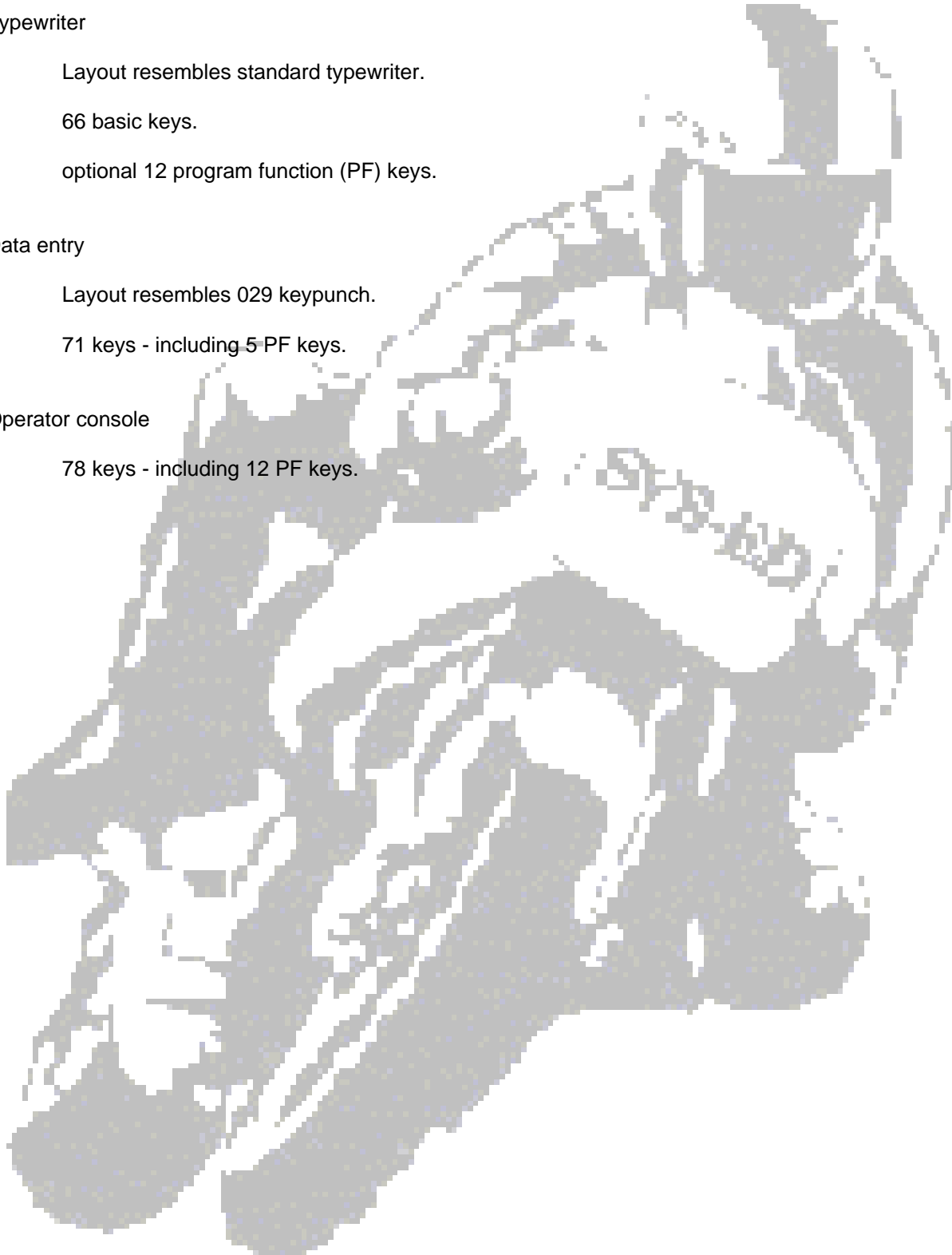
- C Layout resembles standard typewriter.
- C 66 basic keys.
- C optional 12 program function (PF) keys.

Data entry

- C Layout resembles 029 keypunch.
- C 71 keys - including 5 PF keys.

Operator console

- C 78 keys - including 12 PF keys.



4 Entering Data

Cursor

- C Underscore symbol displayed at device.
- C Indicates next input position.

Positioning the cursor

8 9 =>)<	Non-destructive positioning keys; move cursor in indicated direction.
)><*	Tab key; skip out of current field.
*=>)	Tab reverse; return to start of field.
=>)-	Next line.

Enter key

- C Causes input data to be transmitted to cpu.
- C MFS receives only modified data.

4.1 Erase Options

Clear key	C Erase entire screen. C All buffer positions set to null (x'00'). C Cursor set to upper left corner.
Erase input key	C Erase only unprotected fields.
Erase EOF key	C Erase from current cursor position to end of current field.

4.2 Program Access Keys

Program access keys cause input to be transmitted as if the Enter key were depressed.

MFS has assigned pre-defined functions to:

PA1 KEY	Request for next physical page of output.
PA2 KEY	Request for first physical page of next output message.
PA3 KEY	Request to copy displayed data (For data entry keyboard only).

4.3 Program Function Keys

Depression of PF key causes transmission of:

- C input data, as if enter were depressed
- C aid (attention identifier)
 - one character
 - indicates which PF key

The meaning of PF keys is defined in DIF/DOF

Two purposes of PF Keys:

- C Generate input data.
- C Request MFS paging functions.

Generating input data with the PF key as a substitute for a :

- C transaction code.
- C /format command.
- C user data for frequently used transaction.

The generated data is placed in input message. The application program doesn't distinguish between user-entered data and generated data.

Requesting MFS paging:

- C There is no application program action.
- C There is an MFS keywords request:
 - next physical page.
 - next logical page.
 - next message.
 - enter multi-page input.

PF Key as Substitute for Transaction Code

```
CUSTOMER ACCOUNTS  
CUSTOMER ID: 12345678  
DEPRESS APPROPRIATE PF KEY  
PF1 = SAVINGS ACCOUNTS  
PF2 = CHECKING ACCOUNTS  
PF3 = LOANS
```

PF1: SAVE

INPUT MESSAGE	SAVE	␣	12345678
---------------	------	---	----------

4.4 Selector Light Pen

A selector light pen is a pen-like detector attached to 3270 by cable.

Physical contact of the pen to a field on screen identifies selected field. Only fields with attribute "detectable" can be selected by light pen.

A selection changes the modified data tag (in attribute byte) to on.

Detectable field contains a designator character:

- C displayed on screen
- C before detection: '?'
- C after detection: '>'

There are two types of detectable fields:

- C deferred
Field is selected, but not transmitted until entire message is input.
- C immediate
Causes termination of input.
All modified fields are transmitted.

4.5 Magnetic Card Reader

The magnetic card reader is attached to 3270 by cable.

It is an alternate source of input data and is used mostly for security data - password, operator ID. It requires an unprotected field on screen, large enough to hold card's data. The cursor must be positioned at a designated field when the operator inserts card into reader.

Card data appears in application program's input message, as if entered at the screen.

