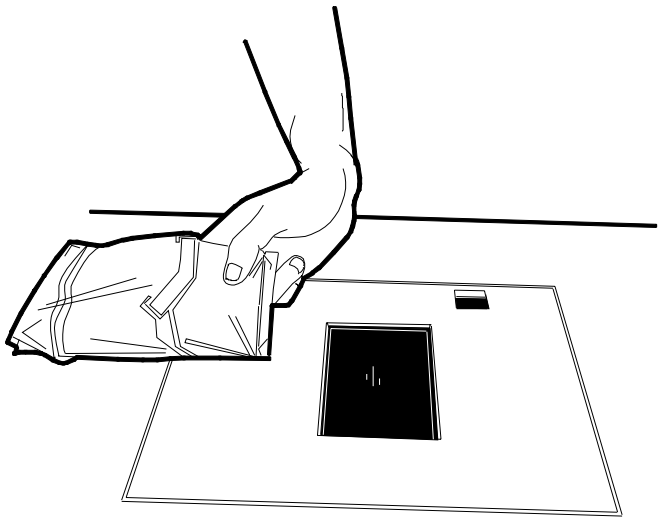
NCR 7880
Scanner/Scale



12623

User's Guide

BST0-2125-03

The program products described in this book are licensed products of NCR Corporation.

It is the policy of NCR to improve products as new technology, components, software, and firmware become available. Therefore, NCR reserves the right to change specifications without prior notice.

All features, functions, and operations described herein may not be marketed by NCR in all parts of the world. Therefore, before using this document, consult your NCR representative or NCR office for information that is applicable and current.

NOTE: Connection of EPOS/PC terminals to weighing or measuring devices requires governmental approval before the connected device can be placed into service for retail trade. Before connecting any NCR device into a retail weighing or measuring system contact the NCR, Weights and Measures Coordinator, Retail Atlanta to authenticate that NCR Certificates of Conformance/Approval is not infringed.

Preface

About this Book

This book contains information about the NCR 7880 Scanner/Scale. This book is for the various people who unpack, install, operate, and troubleshoot the NCR 7880 Scanner/Scale. It contains complete step-by-step instructions for each of these functions.

Since the daily operation of the NCR 7880 is very simple, frequent references to this book are not required while using the scanner. However, this book is essential each time you perform the less frequently used functions such as installing the unit and troubleshooting problems.

Further Information

There are several documents that support the NCR 7880 Scanner/Scale. You can obtain these information products by calling Information Products Publishing at **800-534-2010** or **513-445-3727**. The latest information is also available in electronic form on the internet at **http://www.info.ncr.com/**. Following is a list of all information products that support the NCR 7880.

- NCR 7880 Scanner/Scale User's Guide (BST0-2125-03)
- NCR 7880 Scanner/Scale Repair Guide (BD20-1061-A)

- NCR 7880 Scanner/Scale Programmer's Guide (BD20-1060-A)
- NCR Scanner/Scale Interface Programmer's Guide (BD20-1074-A)
- NCR 7880 Scanner/Scale Parts Identification Manual (BUF0-194)
- NCR 7800, 7870, 7875, 7880, and 7890 Scanner Programming Tags (BST0-2121-74)

Note: A copy of the *NCR 7800, 7870, 7875, 7880 , and 7890 Scanner Programming Tags* booklet (BST0-2121-74) is included with this book, with the *NCR 7880 Scanner/Scale User's Guide*, and with the *NCR 7880 Scanner/Scale Repair Guide.*

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Revision Record

Introducing the 7880 Scanner — Chapter 1

Page No.	Date	Remarks
1-1 - 1-13	01/94	First printing.
1-1 - 1-18	12/94	Complete Revision
1-1 - 1-22	06/96	Complete Revision
1-1 - 1-20	09/97	Added 7880-3000 Model

Preparing Your Site — Chapter 2

Page No.	Date	Remarks
2-1 - 2-21	01/94	First printing.
2-1 - 2-26	12/94	Complete Revision
2-1 - 2-30	06/96	Complete Revision
2-1 - 2-26	09/97	Added 7880-3000 Model

Installing Your 7880 Scanner — Chapter 3

Page No.	Date	Remarks
3-1 - 3-14	01/94	First printing.
3-1 - 3-45	12/94	Complete Revision
3-1 - 3-56	06/96	Complete Revision
3-1 - 3-63	09/97	Added 7880-3000 Model

Operating Your 7880 Scanner — Chapter 4

Page No.	Date	Remarks
4-1 - 4-18	01/94	First printing.
4-1 - 4-31	12/94	Complete Revision
4-1 - 4-30	06/96	Complete Revision
4-1 - 4-30	09/97	Added 7880-3000 Model

Troubleshooting Your 7880 Scanner — Chapter 5

Page No.	Date	Remarks
5-1 - 5-6	01/94	First printing.
5-1 - 5-7	12/94	Complete Revision
5-1 - 5-7	06/96	Minor Corrections
5-1 - 5-8	09/97	Minor Corrections

Appendix A

Page No.	Date	Remarks
A-1 - A-19	06/96	First printing.
A-1 - A-19	09/97	Minor Corrections

Index

Page No.	Date	Remarks
I-1 - I-5	01/94	First printing.
I-1 - I-5	12/94	Complete Revision
I-1 - I-8	06/96	Complete Revision
I-1 - I-8	09/97	Added 7880-3000 Model

Federal Communications Commission (FCC) Radio Frequency Interference Statement

Note

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user is required to correct the interference at his own expense.

Information to User

This equipment must be installed and used in strict accordance with the manufacturer's instructions. However, there is no guarantee that interference to radio communications will not occur in a particular commercial installation. If this equipment does cause interference, which can be determined by turning the equipment off and on, the user is encouraged to consult an NCR service representative immediately.

Caution

NCR is not responsible for any radio or television interference caused by unauthorized modifications of this equipment or the substitution or attachment of connecting cables and equipment other than those specified by NCR. Such unauthorized modifications, substitutions, or attachments may void the user's authority to operate the equipment. The correction of interferences caused by such unauthorized modifications, substitutions, or attachments are the responsibility of the user.

Voluntary Control Council For Interference (VCCI)
Radio Frequency Interference Statement

注意

この装置は、情報処理装置等電波障害自主規制協議会(VCCI)の基準に基づく第一種情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

Canadian Department Of Communications
Radio Frequency Interference Statement

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communication.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la Class A prescrites dans le Règlement sur le brouillage radioélectriques édicté par le Ministère des Communications du Canada.

C E Mark Applicability:

This product conforms to the requirements of the following European Union (EU) New Approach Directives:

Council Directive 90/384/EEC
Non-Automatic Weighing Instruments

Safety Extra Low Voltage

This device should only be powered by a Safety Extra Low Voltage (SELV) power supply source with an available current level of 5 amperes or less, suitable for the country of installation. The power source must be certified by the appropriate safety agency for the country of installation.

Le matériel doit être reliés electriquement au circuit å Très Basse Tension de Sécurité (TBTS) ayant une limite de 5 ampères correspondant de façon satisfaisante et acceptable dans le pays où le matériel doit être installé. Le source d'alimentation doit être approuvée par une agence de normalisation appropriée et acceptable dans le pays où le matériel doit être installé.

Scale Regulatory

Country, state, and local regulatory agency notification of an installation of a weighing device is required. Failure to comply with Weights and Measures regulations can result in criminal prosecution of individuals and can jeopardize the ability to conduct normal business. The NCR 7880 Scanner/Scale has been certified in many countries. Contact the NCR Office of Weights & Measures and Laser Safety for specific country approvals.

NCR Office of Weights & Measures and Laser Safety
Dennis A. Krueger
2651 Satellite Boulevard
Duluth, GA 30096-5810

Phone: 770-623-7743Fax: 770-623-7827E-Mail:
Dennis.Krueger@AtlantaGA.NCR.COM

Declaration Of Conformity

Manufacturer's Name	NCR Corporation
Manufacturer's Address	NCR Corporation Retail Systems Group - Atlanta 2651 Satellite Boulevard Duluth, GA 30096-5810
Type of Equipment	Information Technology Equipment - Bar Code Scanner
Model Number	Class 7880-1000, 7880-2100, and 7880-3000

NCR Corporation, 1700 South Patterson Boulevard, Dayton, OH 45459, USA, declares that the equipment specified above conforms to the referenced EU Directives and Harmonized Standards.

EU Directive	Harmonized Standards	Test Report Number
89/336/EEC (EMC)	EN 55022; 1987 (CISPR 22) EN 50082-1, Part 1: 1992 IEC 801-2: 1984 IEC 801-3: 1984 IEC 801-4: 1988	307
*90/384/EEC (Weights & Measures)	EN45501	

*This Directive is not applicable to 7880-1000 or 7880-3000

Director of Quality Assurance
NCR Corporation
Retail System Group - Atlanta
2651 Satellite Boulevard
Duluth, GA 30096-5810

European Contact: Internal IP Counsel
915 High Road, North Findlex
London N12 8QJ
United Kingdom

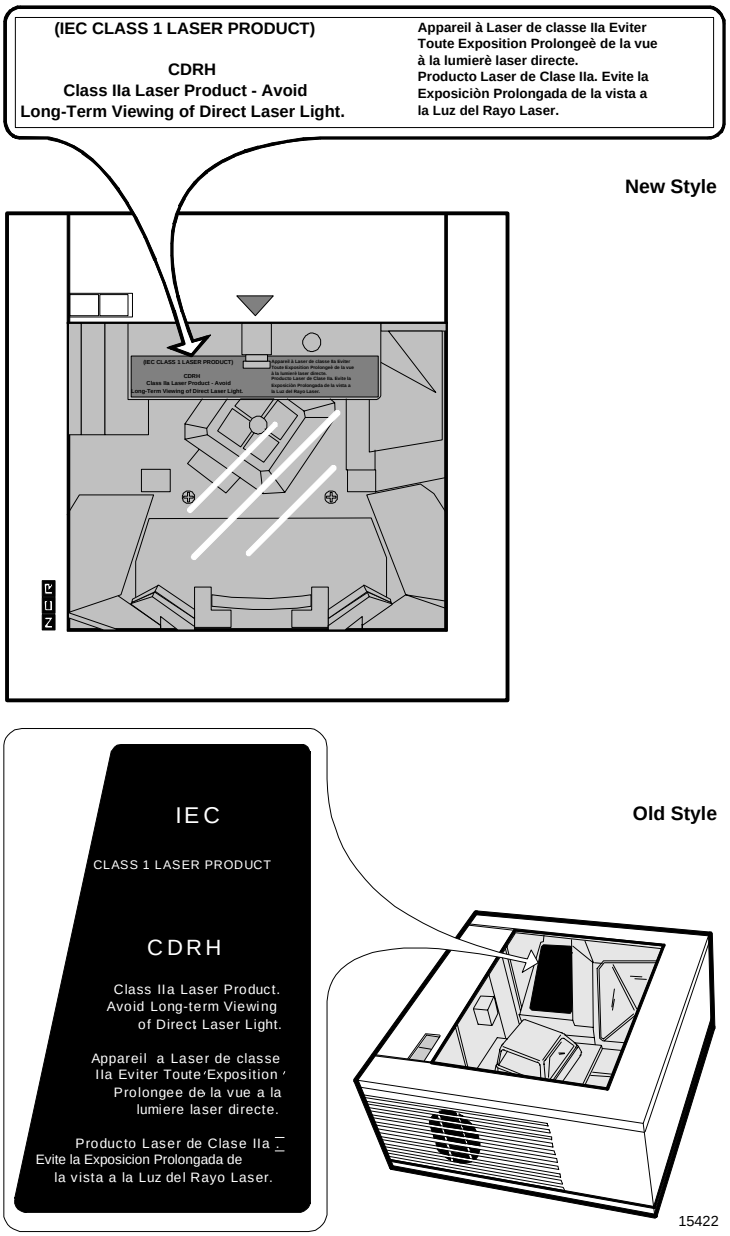
Laser Safety

The NCR 7880 Scanner/Scale is not intended for long-term viewing of the direct laser light. However, the unit is safe if used as it was intended to be used, as the unit has no controls which can increase accessible levels of laser light or collateral radiation from the scanner.

Laser Safety Label

The NCR 7880 Scanner/Scale comes from the factory with the Laser Safety label attached. Figure 1 shows the Laser Safety label and its location.

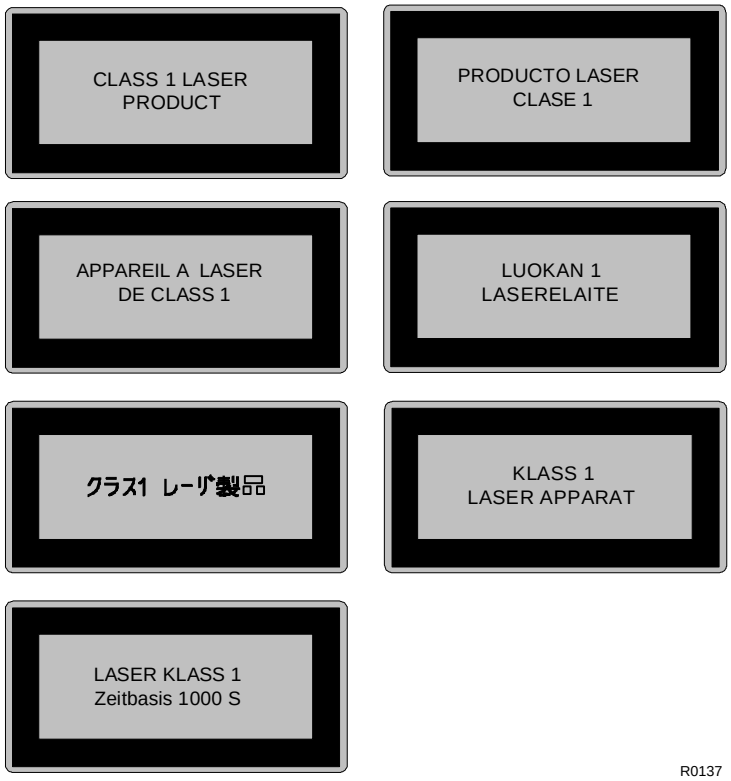
Figure 1Laser Safety Label



Country Language Specific IEC Class 1 Laser Labels

Seven Country Language Specific IEC Class 1 Laser labels are included with the NCR 7880 Scanner/Scale when configured for international installations. The importer/installer must attach the correct IEC label to the scanner cabinet as directed by local regulations. Figure 2 shows the labels.

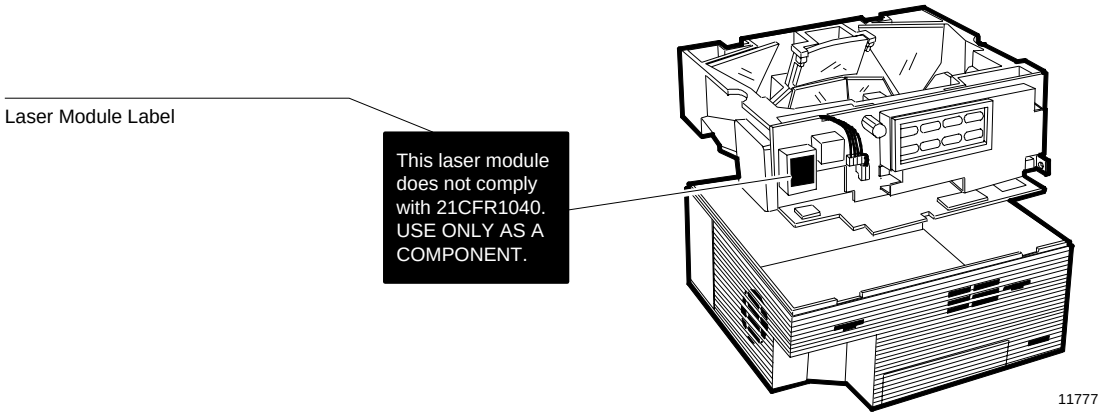
Figure 2
Country Language Specific
IEC Class 1 Laser Labels



Laser Module Label

The NCR 7880 Scanner/Scale comes from the factory with a Laser Module label attached to connector J1 on the Video Board. The label and its location is shown in Figure 3.

Figure 3
Laser Module Label



Laser Power

The NCR 7880 Scanner meets the following laser power requirements.

- Class IIa CDRH (Center for Devices and Radiological Health)
- Class 1 EN60-825 (Europäische Norm)
- Class 1 IEC 825-1 1993 (International Electrotechnical Commission)

Following is the radiant energy of the laser light as applied to each of the specified requirements.

Maximum Average Radiant Power (CDRH Calculation)	1.25 Microwatts
Accessible Emission Limit (CDRH Calculation)	3.9 Microwatts
Maximum Radiant Power (EN60825-1 / IEC 825-1 Calculation)	0.37 Milliwatts
Accessible Emission Limit (EN60825-1 / IEC 825-1 Calculation)	0.43 Milliwatts

Caution Use of controls or adjustments or performance of procedures other than specified herein may result in hazardous radiation exposure.

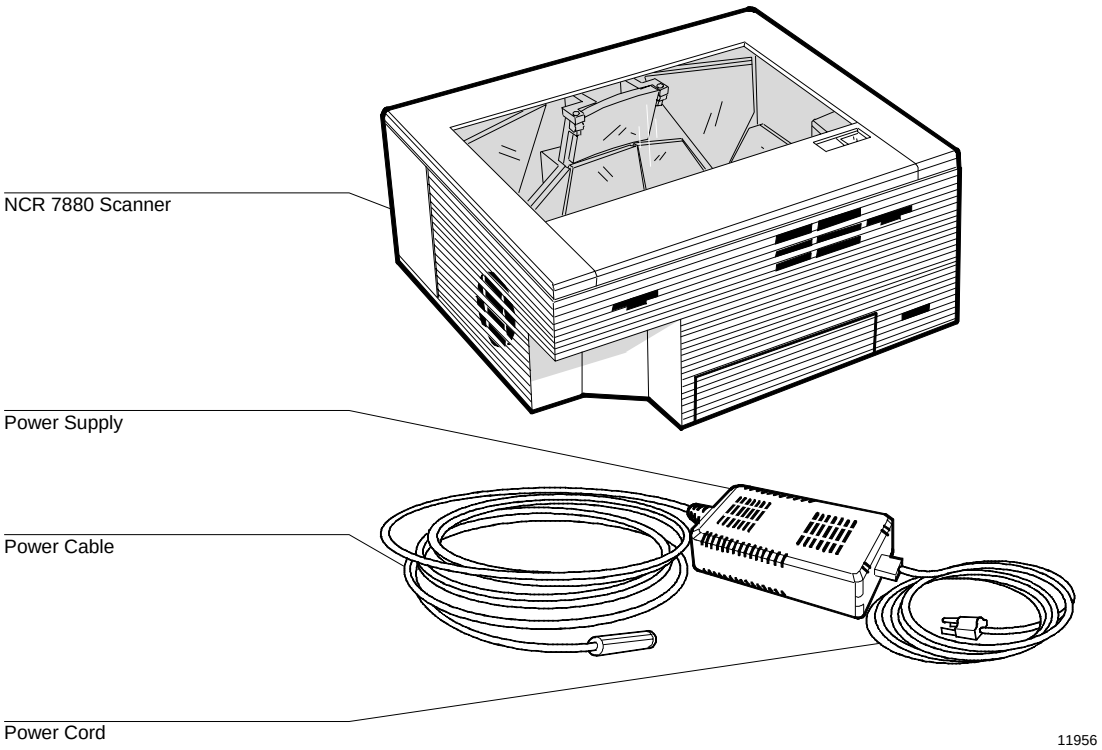
Chapter 1

Introducing the 7880 Scanner/Scale

The NCR 7880 Scanner/Scale

The NCR 7880 is intended for high-performance scanning applications such as supermarkets, drug stores, convenience stores, and specialty stores world wide. It is available as a scanner only or a scanner/scale combination. Figure 1-1 shows the NCR 7880-1000/3000 Scanner.

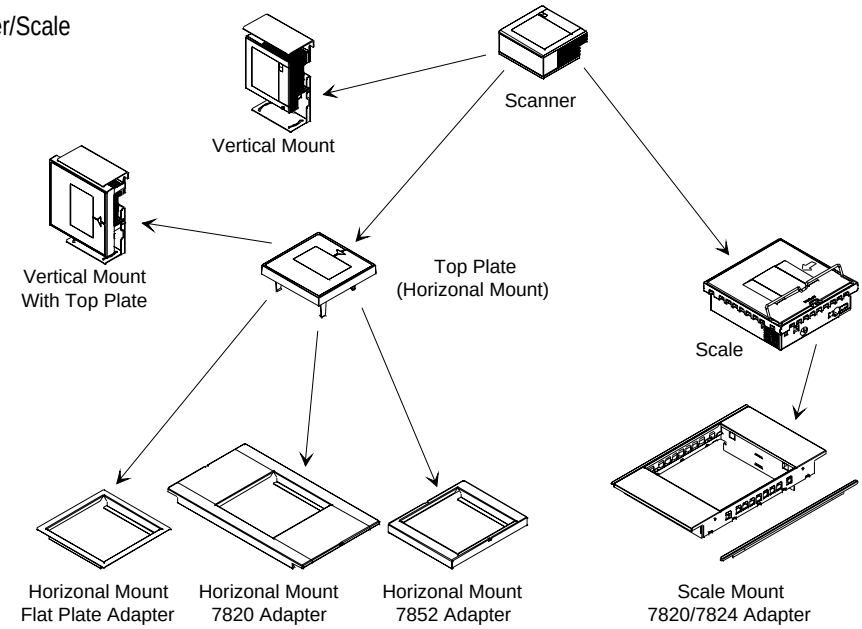
Figure 1-1
NCR 7880-1000/3000 Scanner



NCR 7880-1000 Scanner/Scale

The NCR 7880-1000 Scanner is a small, compact laser scanner that outperforms scanners 3-5 times its size. It can be mounted horizontally in a checkstand or vertically above the checkstand. It must be installed using one of the vertical or horizontally mounting combinations. The optional Top Plate comes with a choice of glass: permanent anti-scratch or armored/diamond coated. The 7880-1000 can also be ordered with a scale unit to provide weighing capabilities. The scale unit mounts in the checkstand, and the scanner mounts inside the scale unit. The various mounting combinations available for the 7880 are shown in Figure 1-2.

Figure 1-2
NCR 7880-1000 Scanner/Scale Mounting Options



NCR 7880-2100 Scale

The NCR 7880-2100 Scale is an upgrade unit for previously installed 7880-1000 Scanners. It is the same scale unit as that shipped from the factory with the 7880-1000 Scanner/Scale combination. Figures 1-3 and 1-4 show the 7880-2100 Scale unit.

Figure 1-3
NCR 7880-2100 Scale

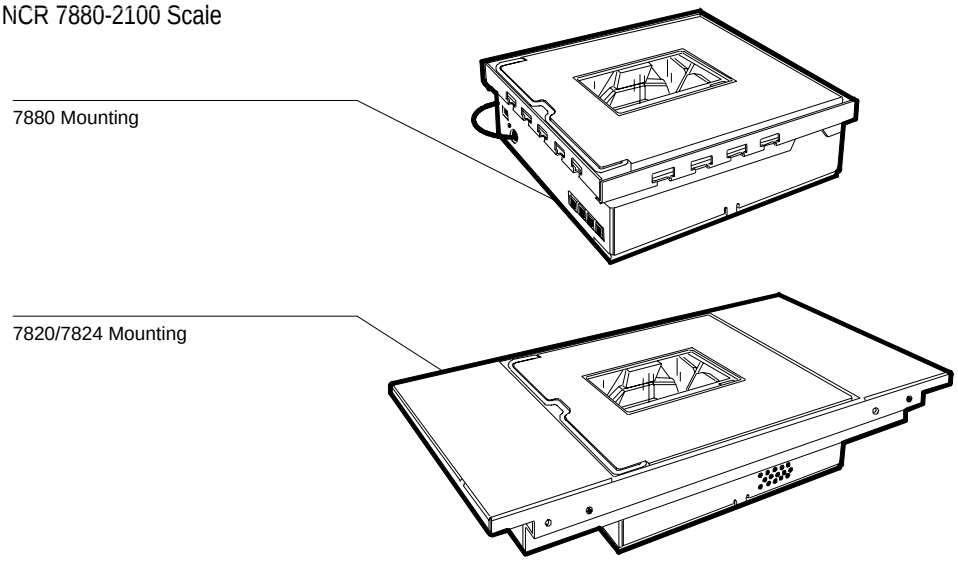
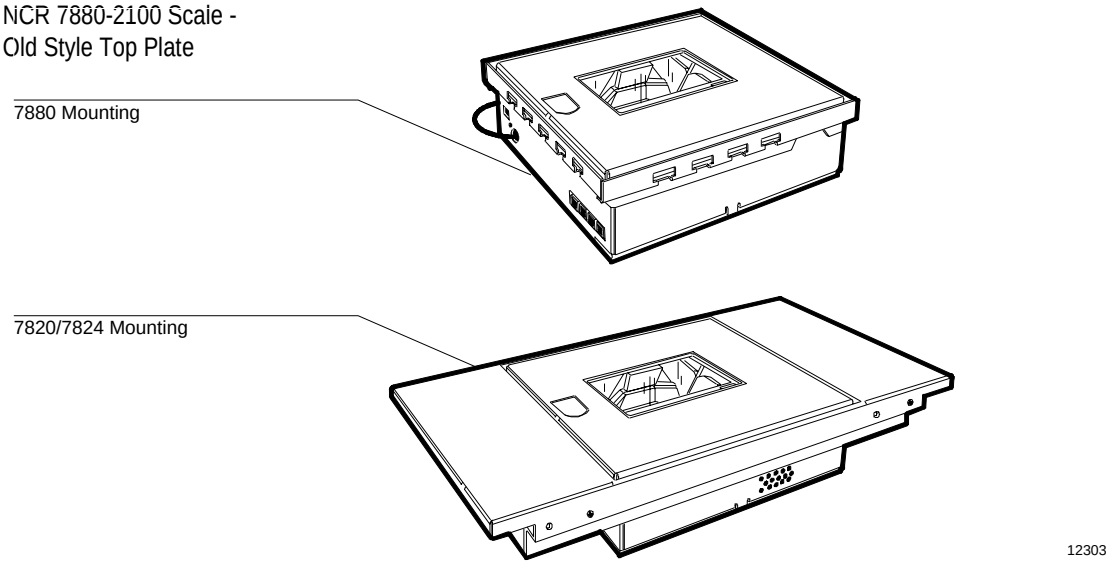


Figure 1-4
NCR 7880-2100 Scale -
Old Style Top Plate



NCR 7880-3000 Scanner

The NCR 7880-3000 Scanner is similar to the 7880-1000 Scanner. However, there are some major differences as given in the following list.

- The scan zone of a 7880-3000 an be optimized for the type of installation. One of two different scan zones is selected when the unit is installed. This optimizes the scanner's efficiency in both vertical and horizontal installations.
- The 7880-3000 can be mounted vertically without using a mounting bracket.
- The 7880-3000 has a dark gray cabinet.
- The 7880-3000 does not have the voice feature.

- The 7880-3000 does not have an auxiliary RS-232 port.
- The 7880-3000 cannot be used with a scale unit.

Models Replaced by the NCR 7880 Scanner

An NCR 7880-1000/3000 with the Top Plate and appropriate mounting kit can directly replace an NCR 7820 or 7852 Scanner. A 7880 Scanner/Scale with the appropriate scale mount, can directly replace an NCR 7824 Scanner/Scale. With other optional mounting brackets, the NCR 7880 can replace most scanners manufactured by other companies.

NCR 7880 Scan Engine

The NCR 7880 Scanner Engine supplies a 20 line scan pattern at a rate of 2,000 scan lines per second. The NCR 7880 scan pattern is designed to provide the operator with the equivalent or better scan zone coverage as the NCR 7820 and NCR 7852 models, in a fraction of the space.

Power Supply

The NCR 7880 operating power is provided by an external 43W power supply providing DC voltage to the scanner. The power supply may be located no closer than 25.4 cm (10.0 in.) from the scanner, on the floor or attached to the checkstand wall. The power supply has a standard 3 m (10 ft) replaceable line cord. The power supply is universal and accepts an

input line voltage range of 90 - 260 Vac and from 47 to 63 Hz. A low voltage power cable connects the power supply to the scanner.

Note: When connecting a 7880 to an NCR 7450 Workstation, the 7450 can supply power to the 7880. This requires an auxiliary power cable that connects to the auxiliary power connector on the 7450. With this configuration, you do not need the 7880 Power Supply

Scale Display Options

The NCR 7880 Scanner/Scale has no integrated display. In most installations, the NCR 7825 Remote Display must be used with the NCR 7880 Scanner/Scale.

You may order the NCR 7880 Scanner/Scale without any display, allowing scale information to be sent to the terminal to be displayed on the terminal's customer display. The terminal display must be governmentally approved for displaying weight information.

Installing the NCR 7880 Scanner and Scale

The NCR 7880 Scanner or Scanner/Scale can be easily installed by the user. The installation process varies depending to the 7880. First, connect the interface and power cables. If the installation is a scanner only, mount the NCR 7880-1000/3000 Scanner on top, or in the checkstand by using the appropriate mounting hardware as required. If the installation is a 7880 Scanner/Scale, mount the scale unit in the checkstand with the appropriate mounting hardware and then mount the 7880-1000 Scanner inside the scale unit.

The steps you must take *prior to* installing the NCR 7880 are described in Chapter 2, *Preparing Your Site*. The installation procedure is provided in Chapter *3, Installing Your 7880 Scanner/Scale.*

Calibrating the NCR 7880 Scale

The installation criteria is critical to the accurate performance of the 7880 Scale. To comply with governmental requirements you must calibrate the scale after installing the 7880 Scale in the checkstand. This procedure is described in Chapter 3, *Installing Your NCR 7880 Scanner/Scale*. The scale calibration must be certified by the appropriate governmental authority before it is used.

Discriminating Among Bar Codes

The NCR 7880 scanner can decode a variety of bar codes. This array of decode structure is not usually found on high performance scanners; however, retail outlets now see these codes in video, case marking, and frequent shopper programs. The ability to discriminate among the following bar code types is a standard feature of the NCR 7880.

- UPC-A
- UPC-E
- UPC-D (limited set)
- EAN-8/13
- JAN-8/13
- EAN + 3 digit add-on
- Code 39 (or Code 3 of 9)
- Code 128
- Code Interleaved 2 of 5
- Add-On Codes

In some situations, the scanner capabilities may exceed the application program capability of the host terminal. Difficulty may therefore arise in transmitting characters to the host system.

For example, if the host terminal is not programmed to interpret code 128 or Code 39, it must be upgraded to read these bar codes. The NCR 7880 transmits any of the previously noted bar codes whether or not the host system is capable of handling them.

Programming tags are used to enable/disable the scanner's ability to recognize advanced code structures.

Programming the NCR 7880

The features of the NCR 7880 must be selected, using the applicable programming tags, to fit your particular business needs. Information about programming is provided in a separate book titled, *NCR 7880 Programmer's Guide*. The programming tags are used to alter the NCR 7880's many operating characteristics. The programming tags are supplied with the scanner in a book titled, *NCR 7800, 7870, 7875, 7880, and 7890 Programming Tags*.

The host terminal requires certain parameter definitions. Following are some of the parameters used by the NCR 7880.

- Communications Protocol
- Good Read Tone
- Not-On-File Tone Volume
- Timers
- UPC/EAN
- Add-On Code
- Code 39
- Interleaved 2 of 5
- Code 128
- Label Identifiers
- RS-232
- Scale Parameters

Scanner parameters can also be modified by downloading commands from the host terminal. The NCR 7880 cannot receive downloaded programming or instructional commands, *unless* the terminal system is equipped to send such information.

PACESETTER Plus

Many labels in a typical retail environment are unreadable. Vendors and printers regularly supply products to the market with bar codes that are overprinted, underprinted or truncated. Some labels have missing margins. Others may be printed around the corners of packages or on media that is not likely to remain flat when picked up.

The PACESETTER Plus option determines what is wrong with a bar code label, fixes the data, and then transfers the information to the host terminal.

There are three modes of PACESETTER Plus operation.

- Mode 1 - Inquiry Mode
- Mode 2 - Real-Time Mode
- Mode 3 - Operations Mode

Mode 1 - Inquiry Mode

PACESETTER Plus can be used as a management tool by store personnel and chain management to monitor and report status on label readability. Tally counters are kept for the following.

- Good reads
- No reads due to lack of a full label
- Good reads with very highly overprinted bars
- Good reads with very highly underprinted bars
- Missing margins

In Mode 1 the tally counts are displayed on the NCR 7825 remote display (if installed).

The percentage of each error type to the good reads tally are also displayed. You can also reset all the tally counts to zero.

Mode 2 - Real-Time Mode

In Mode 2 the scanner is off-line and the scale is disabled. Each subsequent scan of a bar code causes the scanner to indicate the status of label readability. The scanner can recognize missing bars in labels, highly overprinted or underprinted labels, missing margins, or a "no read" condition.

Mode 3 - Operations Mode

Mode 3 is the normal operating mode. The scanner can be programmed to add trailer information to the decoded UPC/EAN data. The trailer information describes the label readability. However, the host software must be capable of receiving the extra data being sent to it.

Using the NCR 7880

The NCR 7880 is very easy to use. It can read labels on the leading side of a package and the bottom side. Products can be read from right-to-left or from left-to-right. The preferred item move direction is from right to left in the horizontal position. When mounted in a vertical position the item move direction can be from right-to-left or from left-to-right. To scan non-horizontal labels, the label should be oriented to substantially face toward the right side of the scan window.

New and veteran checkers can learn to use the NCR 7880 very quickly. For additional information on using the NCR 7880, refer to Chapter 4, *Operating Your 7880 Scanner/Scale.*

Soft Power Down/ Power Up

The NCR 7880 senses periods of inactivity of the scanner. The scanner's soft power down extends the life of the NCR 7880 by disabling major portions of the unit, including the laser diode, spinner motor, and associated electronics. The duration of the inactive period is user selected and programmed through tags.

Scanner power up occurs when movement is detected by the NCR motion detector. This detector is located on the scanner top cover.

The NCR 7880 can also be powered up when the checker signs on the host terminal. This capability assumes appropriate host terminal software.

Not-On-File Feature

The NCR 7880 supports a Not-On-File feature that locks the scanner and sounds a special tone when a product is read that is Not-On-File. This feature prevents the checker from moving beyond a product not recognized by the system.

The Not-On-File feature *requires* a host terminal, and/or an in-store processor to which the host terminal is connected, to have application software capable of Not-On-File determination. The host terminal must send a soft reset command to reactivate the scanner after a Not-On-File condition occurs.

NCR 7880 Features/Options

The NCR 7880's Major Models come with various features for unit mounting, interfaces, window glass types, power cords, scale certifications, decode characteristics, and remote display. The following list gives many of the features available with the 7880. For a more complete list, contact your local NCR representative.

Mounting Style

Feature Number	Description
F051	Mount for Horizontal Scanner/Scale (7820/7824)
F052	Vertical Scanner Mount
F060	Mount for Horizontal Scanner/Scale (7880 Hole)
F058	No Mount
F062	7880 Plastic Top Cover

Window Types

Feature Number	Description
F151	Armored
F152	Scratch Proof / Sapphire

Interface Type

Feature Number	Description
F100	OCIA Single Cable
F101	OCIA Dual Cable
F102	RS-232 Single Cable
F103	IBM 4682/3/4 and IBM 4693/4 Single Cable
F105	RS-485
F106	Non-NCR OCIA
F107	RS-232 Scale
F108	4-Bit Parallel Scale
F451	Checkpoint

Power Cord

Feature Number	Description
F200	U.S. Standard Power Cord
F201	U.S. Twist-Lock Power Cord
F202	International Pig-Tail Power Cord
F203	Japan - Standard
F204	Japan - Twist-Lock Plug
F205	Australia
F207	United Kingdom
F208	Swiss
F209	7450 Series 1000 Auxiliary Power Cable
F210	7450 Series 2000 Auxiliary Power Cable
F211	7452/7453 Auxiliary Power Cablea

Scale Certifications

Feature Number	Description
F400	United States (30.0 lb)
F401	Canada (9.995 kg)
F402	Australia (9.995 kg)
F403	European Community countries (9.995 kg)
F404	New Zealand (9.995 kg)
F405	Mexico (9.995 kg)
F406	United Kingdom (30.0 lb)
F407	International (OMIL certification) (9.995 kg)
F408	Canada (30.0 lb)
F409	Columbia (9.995 kg)
F410	Australia (13.995 kg)
F412	Czech Republic (9.995 kg)
F413	Brazil (9.995 kg)

Decode Characteristics

Feature Number	Description
F301	PACESETTER Plus - Single Label
F303	PACESETTER Plus - Multi-Label

NCR 7880 Kits

Changing from one interface to another is done in different ways. This may involve any or all of the following: change a terminal cable, change a switch position, change an interface board, and/or scan the applicable programming tags. All kits come with instructions on how to install the new components.

Kit Number	Description
7880-K010-V001	Adapter - 7820 Size Hole
7880-K011-V001	Adapter - 7852 Size Hole
7880-K012-V001	Flat Plate Bezel
7880-K048-V001	Adapter Bezel - 7852 Size Hole
7880-K051-V001	Horizontal Scanner/Scale Mount - 7820/7824 Hole
7880-K052-V001	Vertical Scanner Mount
7880-K065-V001	Scale Plate - Lift Bar/Step Glass
7880-K107-V001	Scale - RS-232, 4-Bit Parallel
7880-K301-V001	PACESETTER Plus Upgrade
7880-K101-V001	Dual Cable OCIA Upgrade
7880-K302-V001	Multi-Label Scanning Firmware
7880-K451-V001	Checkpoint Upgrade (7880-10xx only)
7880-K852-V001	Plastic Top Cover - Armored Glass
7880-K853-V001	Plastic Top Cover - Sapphire Glass
7825-0105-0000	Remote Display - 4-Meter Cable (lb)
7825-0106-0000	Remote Display - 8-Meter Cable (lb)
7825-0205-0000	Remote Display - 4-Meter Cable (kg)
7825-0206-0000	Remote Display - 8-Meter Cable (kg)

Chapter 2

Preparing Your Site

About this Chapter

This chapter contains the information necessary for the preparation of a site conforming to NCR specifications. It is very important that the site complies with the requirements specified in this document because, once the equipment has been installed, deficiencies in site preparation or the problems caused by these deficiencies are much more difficult to detect or correct. Further, failure to comply with these requirements or to take proper steps to protect equipment against risks identified in this document may cause serious damage to the equipment and to the customer's business.

In addition to the need to comply with the requirements specified, electrical wiring and mechanical systems must also comply with all relevant codes, laws, and regulations.

It is important that the site be prepared by a customer or a customer agent who is fully conversant with the special requirements of electronic and weighing (scales) equipment. The responsibility of ensuring that the site is prepared in compliance with this document remains with the customer.

For information and guidance proposes only, a list is provided, in general terms, of those matters for which the customer is responsible. This list is not intended to be comprehensive, and in no way modifies, alters, or limits the responsibility of the customer for all aspects of adequate site preparation.

NCR staff is available to answer questions relating to the contents of this document, but except where:

a. the customer has been notified that a full or partial consulting service is available and/or that NCR is willing to undertake a preliminary or final site survey and
b. the customer shall have entered into a formal contract with NCR for provision of the same.

No comment, suggestion or advice offered or not offered about preparation of the site nor any inspection of the site whether before or after preparation is to be taken as approval of the location of the site and equipment or of its preparation, and NCR is not liable in respect of any comment, suggestion or advice given by its staff or in respect of any failure to give advice.

Finally, only the customer can know the full extent of damage which may be caused to his business by reason of failure of the equipment which is to be installed. For this reason it is the customer's responsibility to ascertain the extent of any such possible damage to his existing or planned business, and to effect full insurance in respect of it.

Customer Responsibilities

The customer must do or provide the following.

- When required by NCR, provide the NCR Customer Services Representative or your dealer with appropriate drawings that indicate the following.
  - Location of equipment.
  - Site wiring (power and signal, paths, and lengths).
  - Location of other equipment capable of generating large amounts of electrical noise, electromagnetic interference, heat, and so on.
- Provide floor coverings and environmental systems that prevent static electricity build-up and discharge.
- Provide and install necessary power distribution boxes, conduits, grounds, lightning arrestors, and associated hardware.
- Make sure clear space and environmental requirements of the unit are met.
- Make all building alterations necessary to meet wiring and other site requirements.
- Make sure all applicable codes, regulations, and laws (including, but not limited to, electrical, building, safety, weights and measures, and health) are met.

- Provide and install all communication cables, wall jacks, special connectors, and associated hardware.
- Provide and install auxiliary power or other equipment as required.

Physical Characteristics

The NCR 7880 Scanner is a single device that can be mounted vertically, or in a hole cut into your checkstand. When the NCR 7880 is mounted horizontally in a checkstand the optional Top Plate is required. The power supply mounts outside of the unit, so you can install it in a remote location. You connect the NCR 7880 to your host terminal with one or two cables, depending on the configuration of the terminal. If your unit is an NCR 7880 Scanner/Scale, it can have the NCR 7825 remote display mounted in the checkout area.

Weight

The weight of your NCR 7880 Scanner/Scale varies depending on the type of mounting used to house the scanner. Following are the installed weights for some of the various installation configurations.

Mount	**Weight**
Scanner Power Supply Top Plate NCR 7852 Adapter	3.6 kilograms (8.0 pounds)
Scanner Power Supply Top Plate	3.1 kilograms (6.8 pounds)
Scanner Power Supply Vertical Mount	2.3 kilograms (5.0 pounds)
Scanner/Scale Power Supply	9.41 kilograms (20.75 pounds)

Mount	Weight
Scanner/Scale Power Supply NCR 7820/7824 Adapter	12.0 kilograms (26.5 pounds)

Installation Location

If you are replacing an NCR 7820 or NCR 7852 with an NCR 7880-1000/3000 Scanner, or an NCR 7824 with an NCR 7880 Scanner/Scale, you do not need to change the size of the hole if it was cut to the specified dimensions. Also, with scale installations the counter top should be level since the NCR 7880 Scale must be near level to operate properly.

Checkstand Hole

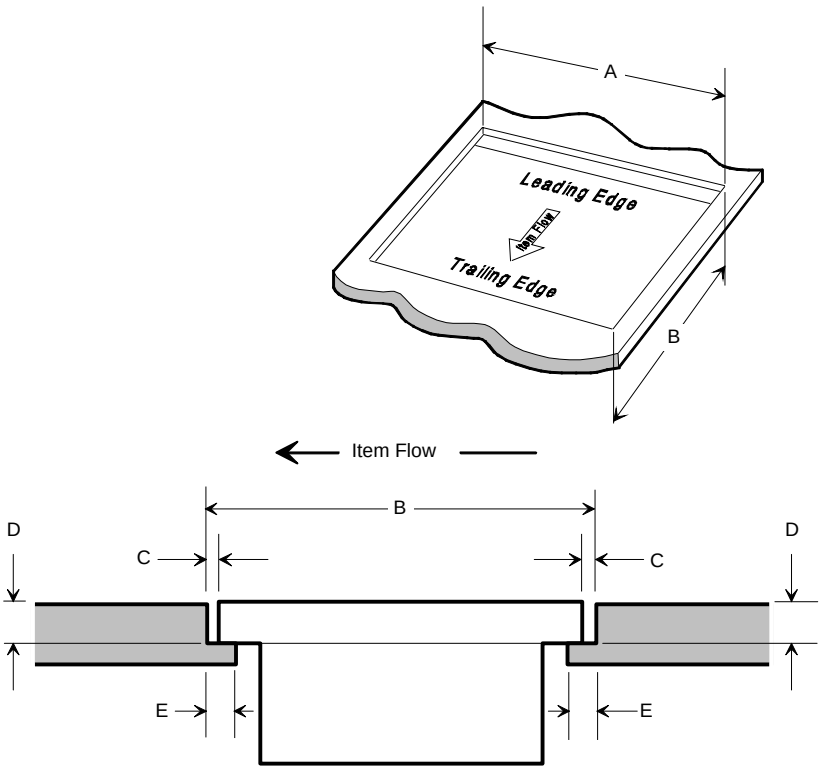
When cutting the checkstand hole, be careful to maintain the specified dimensions, especially if your NCR 7880 contains a scale. For proper scale operation, the leading edge of the Top Plate must be flush or up to 0.15 cm (1/16 in.) below the top of the checkstand. And the trailing edge of the Top Plate must be flush with the checkstand or up to 0.15 cm (1/16 in.) above the checkstand.

It is critical that the checkstand hole be the proper size. If you are replacing an old scanner, measure the hole in the checkstand to verify that it is the correct size for your NCR 7880 with the appropriate mount. Figures 2-1 through 2-4 show the checkstand cutout dimensions for various 7880 mounting configurations.

For European installations, you must provide a 5.08 cm (2 in.) border on the checkstand around all four sides of the scanner/scale. This border must contain the words "NO WEIGH AREA".

Note: NCR recommends that you put an adjustable plate between the NCR 7880 leading edge and the belt on the checkstand. Also the supports must incorporate adjustment bolts for leveling the NCR 7880.

Figure 2-1
Checkstand Hole -
7880-1000/3000 Scanner
Horizontal Mount



SIDE VIEW

Features	A	B	C	D	E
F062	8 5/8 in. 21.91 cm	8 5/8 in. 21.91 cm	1/16 in. 0.16 cm	1 1/16 in. 2.70 cm	1/2 in. 1.27 cm
K011 (7852 Mount)	9 5/8 in. 24.45 cm	11 5/16 in. 28.73 cm	1/16 in. 0.16 cm	1 1/16 in. 2.70 cm	1/2 in. 1.27 cm
K010 (7820 Mount)	20 1/8 in. 51.12 cm	11 5/8 in. 29.53 cm	1/16 in. 0.16 cm	13/32 in. 1.03 cm	7/16 in. 1.11 cm

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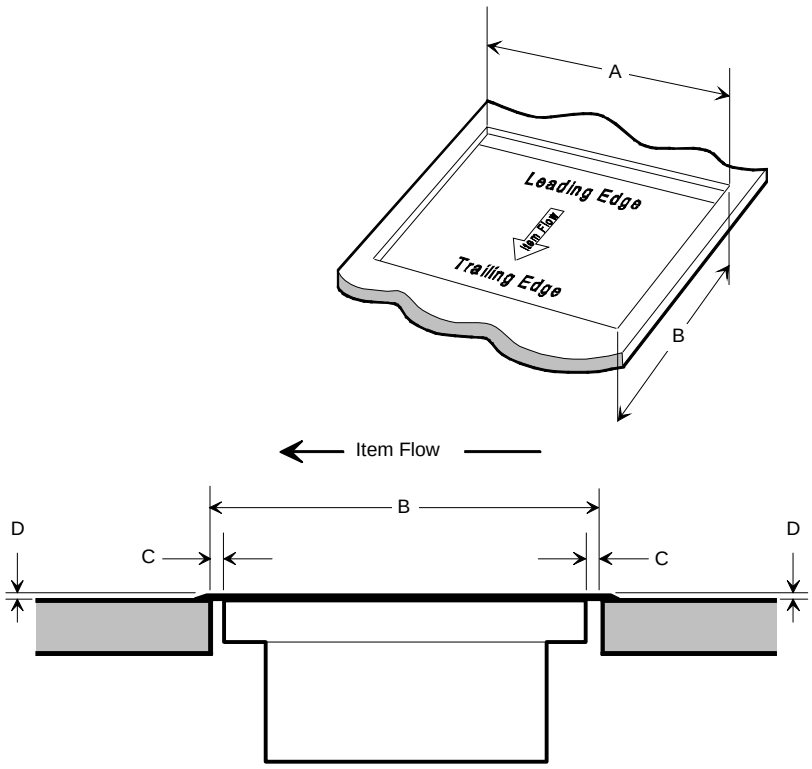
Figure 2-2
Checkstand Hole -
7880-1000/3000 Scanner
Flat Mount



Features	A	B	C	D
K012	8 3/4 in. 22.22 cm	8 3/4 in. 22.22 cm	1/16 in. 0.16 cm	1/16 in. 0.16 cm

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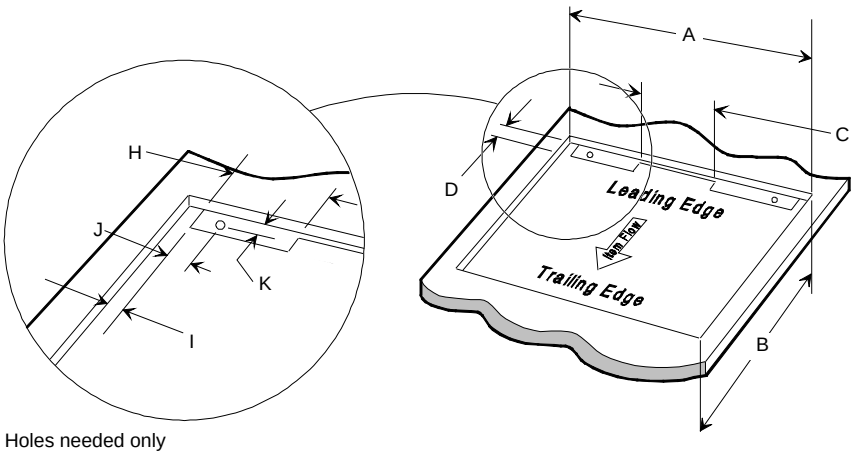
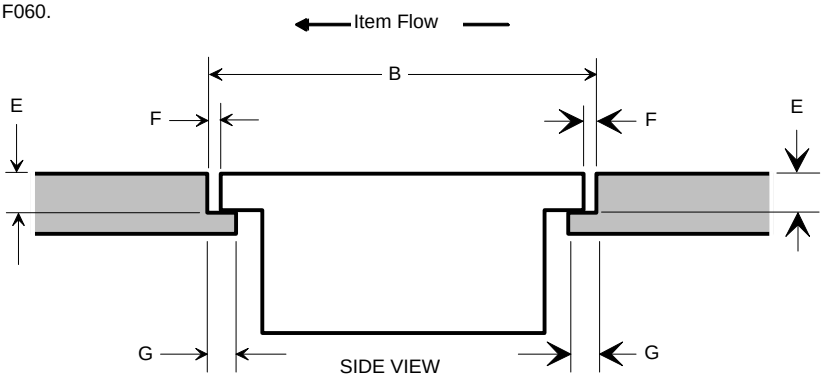
Figure 2-3
Checkstand Hole - 7880 Scale Flat Mount



Holes needed only for F060.



Features	A	B	C	D	E	F	G
F060	11 9/16 in. 29.37 cm	11 1/2 in. 29.21 cm	4 1/4 in. 10.80 cm	1/2 in. 1.27 cm	1 1/8 in. 2.86 cm	1/16 in. 0.16 cm	1/2 in. 1.27 cm

Features	H	I	J	K
F060	3 1/8 in. 7.94 cm	1/2 in. 1.27 cm	1 1/8 in. 2.86 cm	3/8 in. 0.95 cm

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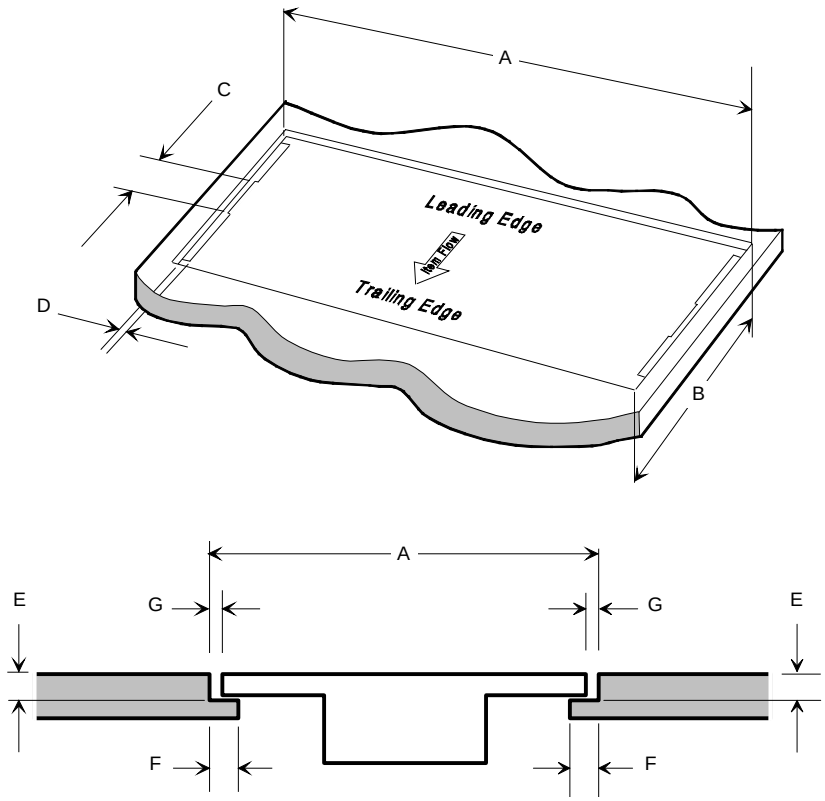
Figure 2-4
Checkstand Hole -
7880 Scale
7820/7824 Size Hole



VIEW FROM LONG SIDE

Features	A	B	C	D	E	F	G
F051 (7820)	20 1/8 in. 51.12 cm	11 5/8 in. 29.53 cm	4 1/4 in. 10.80 cm	1/2 in. 1.27 cm	13/32 in. 1.03 cm	1/2 in. 1.27 cm	1/16 in. 0.16 cm
F051 (7824)	20 1/8 in. 51.12 cm	12 in. 30.48 cm	4 1/4 in. 10.80 cm	1/2 in. 1.27 cm	13/32 in. 1.03 cm	1/2 in. 1.27 cm	1/16 in. 0.16 cm

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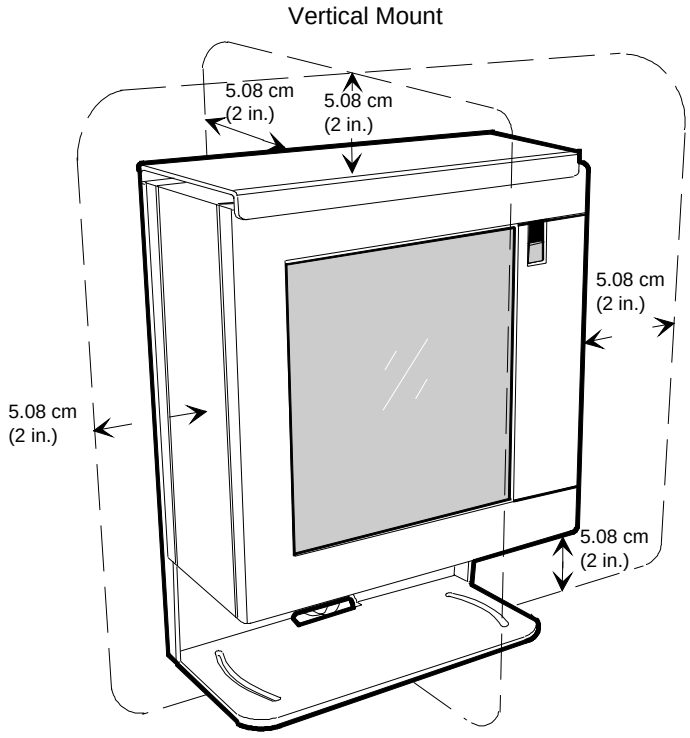
Vertical Installation Requirements

You can install the NCR 7880-1000/3000 vertically on a mounting bracket or directly to your checkout fixture by using the three screw holes on the back of the scanner. The NCR 7880-3000 Scanner has rubber feet on it so that you can place it vertically on your checkstand without using a mounting bracket. NCR recommends that you maintain a clearance of 5.08 cm (2 in.) on all sides of the 7880 as shown in Figure 2-5.

Figure 2-5
Vertical Mounting Clearances - NCR 7880-1000 Scanner (7880-F052)



Cable Lengths

The actual location of the NCR 7880 is largely dependent on the design of the checkstand. However, you must consider the length of the various cables and how to route them to the NCR 7880. You must also consider service slack in the cables to permit lifting the NCR 7880 out of the checkstand without disconnecting the cables. The following charts give the length of each cable.

AC Power Cords - Outlet to Power Supply

Cable	Cable Length
All AC Power Cords	3.05 Meters (10 Feet)

DC Power Cable - NCR 7880 Power Supply

Cable	Cable Length
DC Power Cable	1.22 Meters (4 Feet)

Auxiliary Power Cable - From Host to 7880

Cable	Cable Length	Corporate ID No.
7450 Series 1000	3 Meters (118 Inches)	1416-C289-0030
7450 Series 2000	3 Meters (118 Inches)	1416-C288-0030
7452/7453	3 Meters (118 Inches)	1416-C350-0030

Interface Cables

The following table identifies the interface cables available for the NCR 7880 Scanner/Scale. For host terminals that connect to the 7880 Scanner/Scale using only one cable, use the Single Cable Scanner/Scale column. For host terminals that connect to the 7880-1000/3000 Scanner only use the Scanner Column. For host terminals that connect to the 7880 Scanner/Scale using two cables, use the Scanner and Scale columns. In some cases you have a choice.

Host Terminal	Interface	Single Cable Scanner/ Scale	Scanner	Scale	Corporate ID No.	Cable Length
2113	OCIA		X		1416-C230-0050	5 meters
2123	OCIA		X	X	2123-K315-Vxxx	
2126	OCIA		X		1416-C014-0040	4 meters
2126	OCIA		X		1416-C014-0080	8 meters
2126	OCIA			X	1416-C015-0040	4 meters
2126	OCIA			X	1416-C015-0080	8 meters
2127	OCIA	X	X		1416-C016-0040	meters
2127	OCIA	X	X		1416-C016-0080	8 meters
2151, 2152	OCIA		X		1416-C234-0040	4 meters
2154, 2155, 2156, 2157	OCIA	X	X		1416-C012-0040	4 meters
2154, 2155, 2156, 2157	OCIA	X	X		1416-C012-0080	8 meters
2154, 2155, 2156, 2157	OCIA			X	1416-C013-0040	4 meters
2154, 2155, 2156, 2157	OCIA			X	1416-C013-0080	8 meters

Host Terminal	Interface	Single Cable Scanner/ Scale	Scanner	Scale	Corporate ID No.	Cable Length
2170	RS-232		X		1416-C069-0040	4 meters
2170	RS-232		X		1416-C069-0080	8 meters
2170	RS-232			X	1416-C233-0040	4 meters
2170	RS-232			X	1416-C233-0080	8 meters
2552	OCIA		X		1416-C026-0040	4 meters
2552	OCIA		X		1416-C026-0080	8 meters
2552	OCIA			X	1416-C028-0040	4 meters
2552	OCIA			X	1416-C028-0080	8 meters
2557	OCIA		X		1416-C026-0040	4 meters
2557	OCIA		X		1416-C026-0080	8 meters
2557	OCIA			X	1416-C027-0040	4 meters
2557	OCIA			X	1416-C027-0080	8 meters
2760	OCIA	X	X		1416-C011-0040	4 meters
2760	OCIA			X	1416-C061-0040	4 meters
2950	OCIA		X		1416-C234-0040	4 meters
7050/7051/7070	OCIA	X	X		1416-C012-0040	4 meters
7050/7051/7070	OCIA	X	X		1416-C012-0080	8 meters
7050/7051/7070	OCIA			X	1416-C013-0040	4 meters
7050/7051/7070	OCIA			X	1416-C013-0080	8 meters
7052/7053/7054	OCIA	X	X		1416-C011-0040	4 meters
7052/7053/7054	OCIA			X	1416-C061-0040	4 meters
7058	OCIA		X		1416-C230-0050	5 meters
7045	OCIA	X	X		1416-C011-0040	4 meters
7835/7836 (Auxiliary RS-232)	RS-232		X		1416-C282-0003	12 inches
Beetle	RS-232	X			1416-C263-0040	4 meters

Host Terminal	Interface	Single Cable Scanner/ Scale	Scanner	Scale	Corporate ID No.	Cable Length
Casio 2100	OCIA		X		1416-C072-0040	4 meters
Casio 2100	4-Bit Parallel			X	1416-C073-0040	4 meters
Gilbarco Controller (9-pin)	RS-232		X		1416-C237-0040	4 meters
IBM 4683/4684 w/Port 17	IBM-4683	X	X		1416-C020-0040	4 meters
IBM 4683/4684 w/Port 17	IBM-4683	X	X		1416-C020-0080	8 meters
IBM 4682/83/84/93 w/Port 9B and IBM 4694 w/Port 9E	IBM	X	X		1416-C070-0040	4 meters
IBM 4682/83/84/93 w/Port 9B and IBM 4694 w/Port 9E	IBM	X	X		1416-C070-0080	8 meters
IBM 4683/4 w/Port 5B	IBM	X	X		1416-C142-0040	4 meters
ICL 9518-01/21/61/62/71	OCIA		X		1416-C264-0040	4 meters
ICL 9518-01/21/61/62/71	OCIA		X		1416-C264-0080	8 meters
ICL 9518-21/61/62/71	RS-232			X	1416-C265-0040	4 meters
ICL 9518-21/61/62/71	RS-232			X	1416-C265-0080	8 meters
ICL 9518 (25-pin D)	RS-232		X		1416-C140-0040	4 meters
ICL 9518 (25-pin D)	RS-232			X	1416-C146-0040	4 meters
ICL 9520 (9-pin D)	RS-232		X		1416-C227-0040	4 meters
ICL 9520 (9-pin)	RS-232			X	1416-C226-0040	4 meters
MicroBilt 8010	RS-232		X		1416-C326-0040	4 meters
PC (9-pin)	RS-232	X	X		1416-C019-0040	4 meters
PC (9-pin)	RS-232	X	X		1416-C019-0080	8 meters

Host Terminal	Interface	Single Cable Scanner/ Scale	Scanner	Scale	Corporate ID No.	Cable Length
TEC M-xxxx	OCIA		X		1416-C250-0040	4 meters
TEC M-xxxx	OCIA		X		1416-C250-0080	8 meters
TEC M-xxxx	4-bit Parallel			X	1416-C249-0040	4 meters
TEC M-xxxx	4-bit Parallel			X	1416-C249-0080	8 meters
Verifone	RS-232		X		1416-C254-0040	4 meters
Wayne Controller (9-pin)	RS-232		X		1416-C236-0040	4 meters
Wedge (6-pin)	RS-232 modular		X		1416-C141-0040	4 meters
Non-NCR OCIA (9-pin CPC)	OCIA				7880-F106	

Note: The cables can be ordered as features if ordered at the same time as the scanner. If ordered as a feature, the cable is packaged in the same box as the NCR 7880 Scanner.

Display Cables

Display	Corporate ID No.	Cable Length
7825 Remote Display	1416-C022-0040	4 meters
7825 Remote Display	1416-C022-0080	8 meters
Price/Weight Multiplex Display for 2552/2557, 1255	1416-C068-0040	4 meters
Price/Weight Multiplex Display for 2552, 2557, 1255	1416-C068-0080	8 meters

Hole Requirements for the 7880 Cables

When you run the various cables through the checkstand, you might have to drill holes in some of the panels. The holes must be large enough for the connector on one end of the cable to pass through. You must also assure that there are no sharp edges to cut the cable. The following table gives the minimum hole size for each of the NCR 7880 cables.

Cable	Minimum Hole Size
Power Cable - Outlet to Power Supply	3.18 cm (1.25 in.)
Power Cable -NCR 7880 Power Supply	1.52 cm (0.6 in.)
Interface Cable	1.90 cm (0.75 in.)
Remote Display Cable	1.90 cm (0.75 in.)

Ventilation Requirements

The NCR 7880 Scanner/Scale is designed to operate without an exhaust fan in the checkstand; however, there must be adequate convection air flow. The ambient temperature inside the checkstand cannot be higher than 40° C (104° F). Also, the ambient temperature inside the checkstand cannot be more than 7° C (12.6° F) above the ambient temperature outside the checkstand. For example, if the ambient temperature outside the checkstand is 24.4° C (76° F), the ambient temperature inside the checkstand cannot be greater than 31.4° C (88.6° F).

If the checkstand contains other heat producing equipment, you may need to use forced air to keep the temperature within the specified range. However, air coming into or leaving the checkstand MUST NOT enter or exit past the NCR 7880 Scanner/Scale.

Environmental Requirements

Your NCR 7880 Scanner/Scale operates in most standard working environments. Temperature ranges permitted are greater when the NCR 7880 is in storage or transit. There is also an extreme environmental range in which the NCR 7880 can have power applied for a short period of time without suffering any damage. This extreme range can last for no longer than one hour, with an accumulated duration of 0.1% of the specified life of the scanner. The following table gives the various environmental requirements.

	Operating	Extreme Operating	Storage	Transit
Temperature	10° C to 40° C (50° F to 104° F)	-15° C to 45° C (5° F to 113° F)	-15° C to 50° C (5° F to 120° F)	-40° C to 60° C (-40° F to 140° F)
Temperature Change	10° C per hour (18° F per hour)	20° C per hour (36° F per hour)	20° C per hour (36° F per hour)	20° C per hour (36° F per hour)
Relative Humidity	5% to 95% Non-Condensing	5% to 95% Non-Condensing	5% to 95% Non-Condensing	5% to 95% Non-Condensing
Barometric Pressure	105 x 10^3 Pa to 79.5 x 10^3 Pa			105 x 10^3 Pa to 74 x 10^3 Pa
Ambient Light	200 Foot-candles			
Acoustical Noise	55 dBa or less			
Vibration and Shock	30 to 300 Hz with a maximum of 0.05 g			

Power Requirements

Your NCR 7880 Scanner/Scale receives power from an external power supply. The power supply is a 43-watt switching power supply with the following inputs.

Voltage	90 to 260 Vac
Frequency	47 to 63 Hz
Input Power	15 Watts Max

You can mount the power supply no closer to the NCR 7880 than 25.4 cm (10 in.).

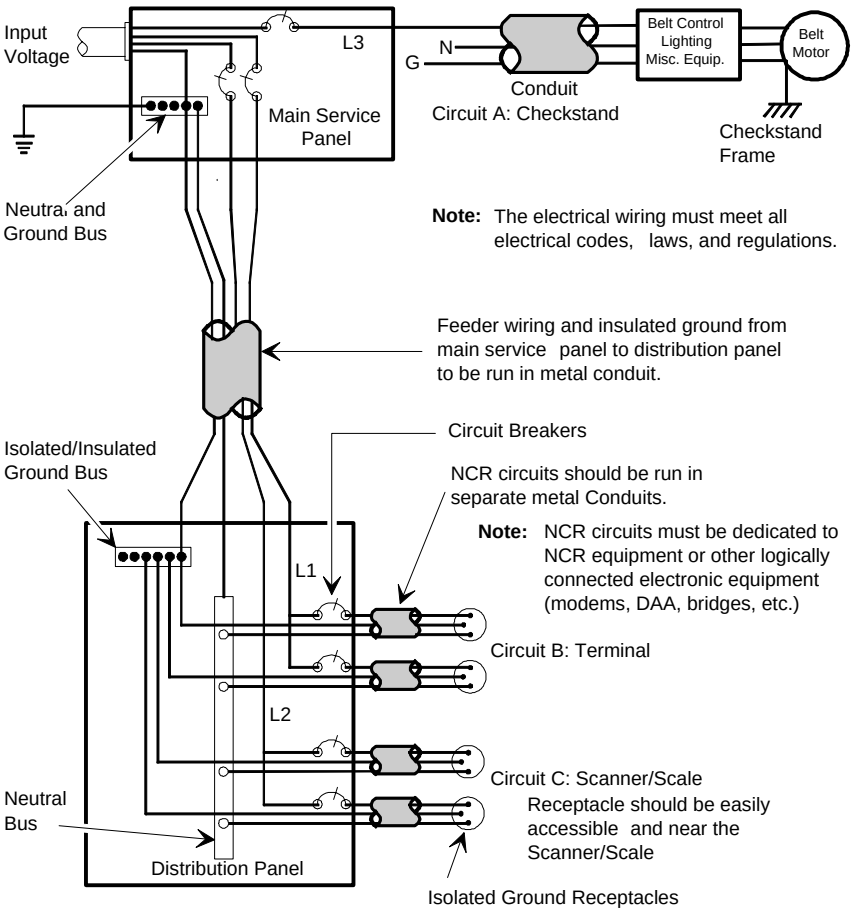
Power Application

Your NCR 7880 Scanner/Scale has no On/Off switch in the unit. Therefore, you **must** wire the checkstand to include a recessed, 15 A circuit breaker accessible to the operator to turn the unit On and Off. This circuit breaker is the On/Off switch for the NCR 7880.

Typical Checkstand Wiring

You must wire the checkstand to provide a safety ground for the checkstand motor and equipment without compromising the isolated ground requirement of the NCR 7880 Scanner/Scale. Figure 2-6 shows typical checkstand wiring diagrams for various installations.

Figure 2-6
Checkstand Wiring



Installation Type	Input Voltage	L1, L2	Circuit Breakers
U.S., Canada, & Japan	100Vac to 120Vac	100Vac to 120Vac	Standard single-pole; value determined by type of device branch and by electrical code.
International	220Vac to 240Vac	220Vac to 240Vac	
European	220Vac	220Vac	European double-pole.

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Run two separate feeder lines in conduit from the main service panel in the checkstand to the customer equipment and to the NCR distribution panel.

- Line 1 services Circuit A; customer equipment such as the checkstand belt-motor, counter lighting, cooling fans, and any miscellaneous customer equipment.
- Line 2 is dedicated to service the NCR equipment, typically Circuit B and Circuit C.

The grounding conductor in Circuit A is the Store Ground. You must electrically connect the conduit and checkstand junction box to the frame of the checkstand, if conductive, or to a common tie point if not conductive. You must connect any other conduit, metal parts, or store ground devices that pass under, through, or around the checkstand, to this ground. You must also connect the counter belt motor ground or other counter equipment grounds to this ground.

- The ground conductor in Circuit B (to the host terminal) is an isolated ground, and must be isolated from the outlet box for the host terminal. The circuit breaker in the power conductor of Circuit B is optional, but should be near the operator and recessed if used.
- The power conductor in Circuit C (to the scanner/scale), should include a circuit breaker rated at 15 Amps near the operator and recessed to avoid accidentally turning the equipment Off.

Note: The outlet boxes for this NCR equipment should be isolated from the ground conductor, convenient to the equipment, readily accessible, and labeled to identify the NCR equipment they service.

Auxiliary Power

If you connect your 7880 to an NCR 7450 Workstation, the 7880 can receive AC Power from the 7450 through a special Auxiliary Power Cable. Two cables are available, one for a 7450 Series 1000 and one for a 7450 Series 2000.

Power Transients Protection

Voltage transients, surges, sags, impulses, and spikes may be experienced routinely or sporadically. When such phenomena occur, the use of protective devices may be required to ensure proper operation of the equipment.

Chapter 3

Installing Your NCR 7880 Scanner/Scale

Overview

Installing Your NCR 7880 Scanner/Scale

This Chapter of the User's Guide details the installation process for the NCR 7880-1000/3000 Scanner and the NCR 7880-1000 Scanner/Scale.

Preparing for Installation

This section provides information on reporting damage to your NCR 7880, the contents of the shipping box, interface cable information, how to interpret product number information, and location of NCR 7880 product labels.

Installing the 7880

This section provides step by step procedures to install the three basic NCR 7880 configurations: vertical mount scanner, horizontal mount scanner, and scanner/scale. Some horizontal and scanner/scale installations require special mounting kits. These kits contain the specific installation instructions.

Dual Cable Communication Adapter Installation

Some dual cable installations require a communication adapter. This section describes where the communications adapter is used, how to install it, and how to set the specific programming parameters.

Auxiliary Power from a 7450

This topic is covered in two sections. One describes how to obtain AC power for the 7880 from a 7450 Series 1000; the other describes how to obtain AC power for the 7880 from a 7450 Series 2000.

Auxiliary RS-232 Port

This section describes the use of the auxiliary RS-232 port and the fixed parameters.

Connecting a 7880 to an NCR 2170 Terminal

This section describes all the special programming required when connecting the 7880 to an NCR 2170 Terminal.

Determining if Unit is Operational

This section provides information on determining if the NCR 7880 is working properly and what to do if it is not. Procedures for Checkout and Programming the NCR 7880 are provided in this section.

Determining Communications Protocol

This section gives a step by step procedure to determine the communications protocol programmed into your NCR 7880.

Scale Address for IBM Communications

This section provides information on how to configure the Scale Address for IBM Communications to use the single-cable communications feature.

Calibrating the Scale

This section provides step by step procedures to access the calibration switch, perform a pre-calibration exercise, calibrate the scale, and verify the calibration of the NCR 7880 Scale.

Convenience Store Installations

This section provides information for connecting an NCR 7880 to other manufacturer's equipment for use in Convenience stores. This includes specific programming requirements.

Preparing for Installation

This section describes the steps you must take before installing the NCR 7880. Before reading this chapter, prepare your site in accordance with the NCR site requirements described in Chapter 2, *Preparing Your Site* .

The NCR 7880 Scanner/Scale mounts in various current NCR and other manufacturer's scanner checkstand cutouts. Refer to *NCR 7880 Kits* in Chapter 1, *Introducing the 7880 Scanner/Scale,* for the available mounting kits.

Reporting a Damaged NCR 7880

When you receive the NCR 7880, inspect the shipping carton for damage. If the carton is damaged, open it in the presence of the shipping carrier before signing the bill of lading.

If the NCR 7880 Scanner/Scale has been damaged due to shipping, notify the carrier, your NCR representative, or your supplier if the unit was not purchased directly from NCR.

What is in the Box

After you unpack the NCR 7880 according to the instructions printed on the box, take inventory to assure you have received all components. The following list identifies the package contents:

- NCR 7880
- Power Cord
- Power Supply
- Top Plate Assembly (If mounted horizontally)
- Vertical Mount (If mounted vertically)
- Scale Unit (If Scanner/Scale)
- POS Cable (optional)
- Two Cable Clamps
- Documentation
- Country Language Specific IEC Class 1 Laser Labels (International Units)
- Power Cord Documents (International Units)
- Metal Foil Stamping Plate (International Units)

Interface Cables

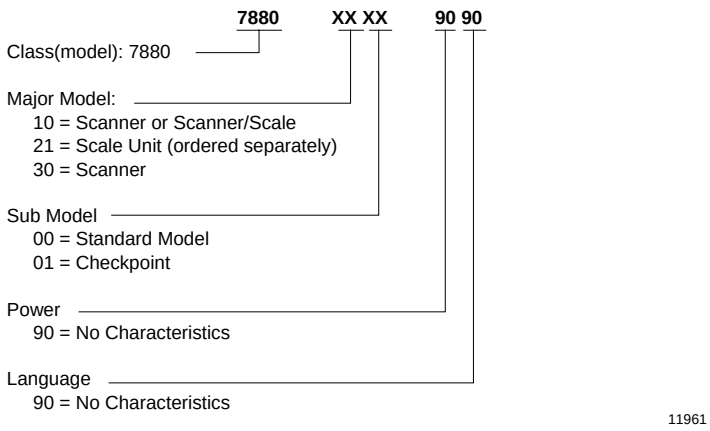
The NCR 7880 can be used with many different host terminals. Verify you have received the correct interface cable by referring to *Interface Cables* in Chapter 2, *Preparing Your Site*. This cable may have been ordered separately.

Depending on the host terminal, and the software the host terminal is running, scanner and scale information can be communicated over one cable or two separate cables.

Product Number

Figure 3-1 shows the interpretation of the NCR 7880 Product Number. The product number appears on the label on the bottom of the NCR 7880 scanner.

Figure 3-1
NCR 7880 Product Number



NCR 7880 Labeling

The NCR 7880-1000/3000 Scanner has a product label affixed to the bottom of the chassis. This label contains safety certification information, the product, class, model, serial number and tracer number.

The NCR 7880 Scale unit also has a product label affixed to the inside floor of the Scale Assembly. In addition, it has a scale label that contains safety certification symbols, the model number, serial number, approval number, scale capacities, and temperature range.

Installing the 7880

The 7880 is fully assembled at the factory and requires no operator assembly. The Laser Module is an integral part of the factory assembled device and does not have any controls that can increase the level of laser light or collateral radiation from the 7880.

Verify the following

- Checkstand hole is correct size.
- Display and service clearances are adequate.
- Checkstand is properly wired.

Some terminals may require a trained service technician to open the terminal and connect the interface cables.

The NCR 7880 has no power On/Off switch. The checkout counter must have a recessed circuit breaker switch located near the operator. This switch powers the unit On and Off during normal operations is used as the On/Off switch.

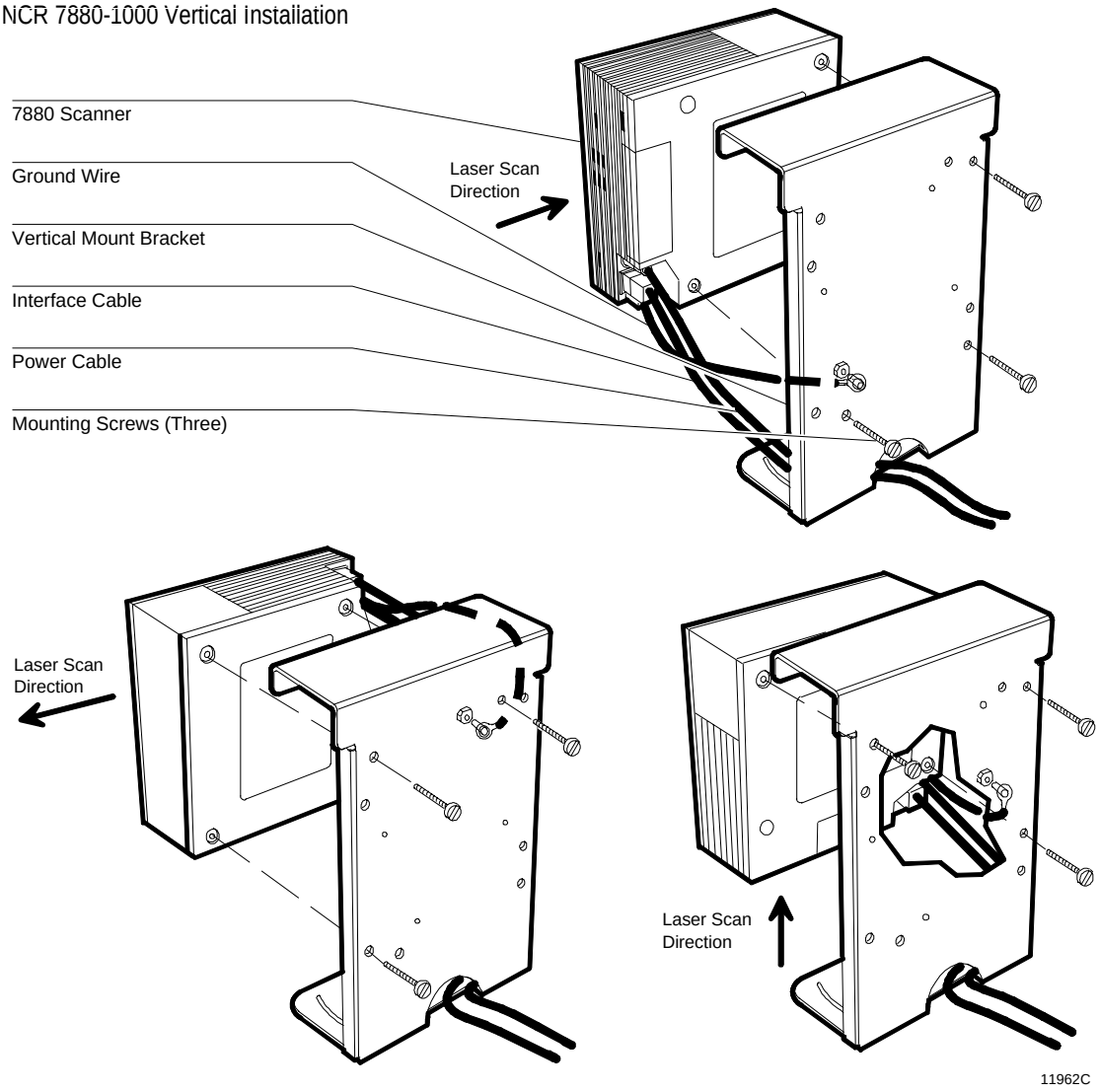
When installing the unit in the checkstand, you may need to support the cables to keep them up and out of the way. This unit comes with two cable clamps that you can use to support the cables.

The 7880-1001/3001 Scanner is a Checkpoint model that has a cable coming from inside the Plastic Top Cover. A representative from Checkpoint must connect the cable to the Checkpoint equipment after you install the 7880.

Installing the 7880-1000/3000 Scanner Vertically Using a Vertical Mounting Bracket

1. Choose a location on the checkstand for the 7880 and drill mounting holes for the Vertical Mounting Bracket.
2. Drill a hole in the checkstand behind the mounting holes for the power and interface cables.
3. Attach the mounting bracket to the checkstand with two #8 screws and washers provided in the kit. Wood or sheet metal screws are not provided, but may be used.
4. If you are installing an NCR 7880-3000, you need to set the Scan Zone at this time. Refer to *Setting the NCR 7880-3000 Scan Zone* in this chapter.
5. Determine which orientation you want to use.
6. Place the end of the ground wire with the ring tongue terminal over the threads of the grounding stud nearest to the corner of the scanner where the cables will connect. If the ground wire is already connected to the scanner, remove it to make this connection. Make sure the teeth are pointing toward the Mounting Bracket (refer to Figure 3-2).

Figure 3-2
NCR 7880-1000 Vertical Installation



7 Place the nut on the stud and tighten it securely.

8 Verify that you have the correct power cord for your electrical outlet. **See note at end of this procedure.**

9 Install the power supply in the checkstand away from the scanner.

10 Route the power cable from the power supply up through the hole in the checkstand and through the hole at the bottom of the Mounting Bracket.

11 Route the terminal end of the interface cable down through the hole in the counter to the terminal.

12 Route the other end of the interface cable through the hole in the Vertical Mounting Bracket.

13 Connect the interface cable to the host terminal or PC. Refer to your terminal documentation for instructions on how to connect the interface cables.

14 Bring the scanner to the mounting bracket, and connect the power cable to the round DC power receptacle (J2) on the scanner.

15 Connect interface cable to the square receptacle (J1) located on the back of the 7880.

16 If this is a Checkpoint unit, route the Checkpoint cable along side the interface cable.

17 Place the scanner on the mounting bracket and secure it with the three mounting screws. Make sure that the cables are routed around the bracket and downward, not pinched between the bracket and the scanner.

18 Connect the fast-on end of the ground wire to the lug next to the interface connector on the scanner.

19 Verify that the 7880 power receptacle switch is off. Install the Power Cable into the power supply. Plug the Power Cord into the designated wall outlet.

20 Apply AC power to the 7880.

End of procedure. ■

Note: If the 7880 is getting power from a 7450 Workstation, refer to either *Auxiliary Power from a 7450 Series 1000* or *Auxiliary Power from a 7450 Series 2000* in this chapter.

Installing the 7880-1000/3000 Scanner Horizontally

Note: This procedure assumes you are installing the 7880-1000/3000 Scanner in a standard size hole. If your checkstand hole is a larger one, such as for an NCR 7820 Scanner, then an additional adapter kit is required and the installation instructions are provided with that kit..

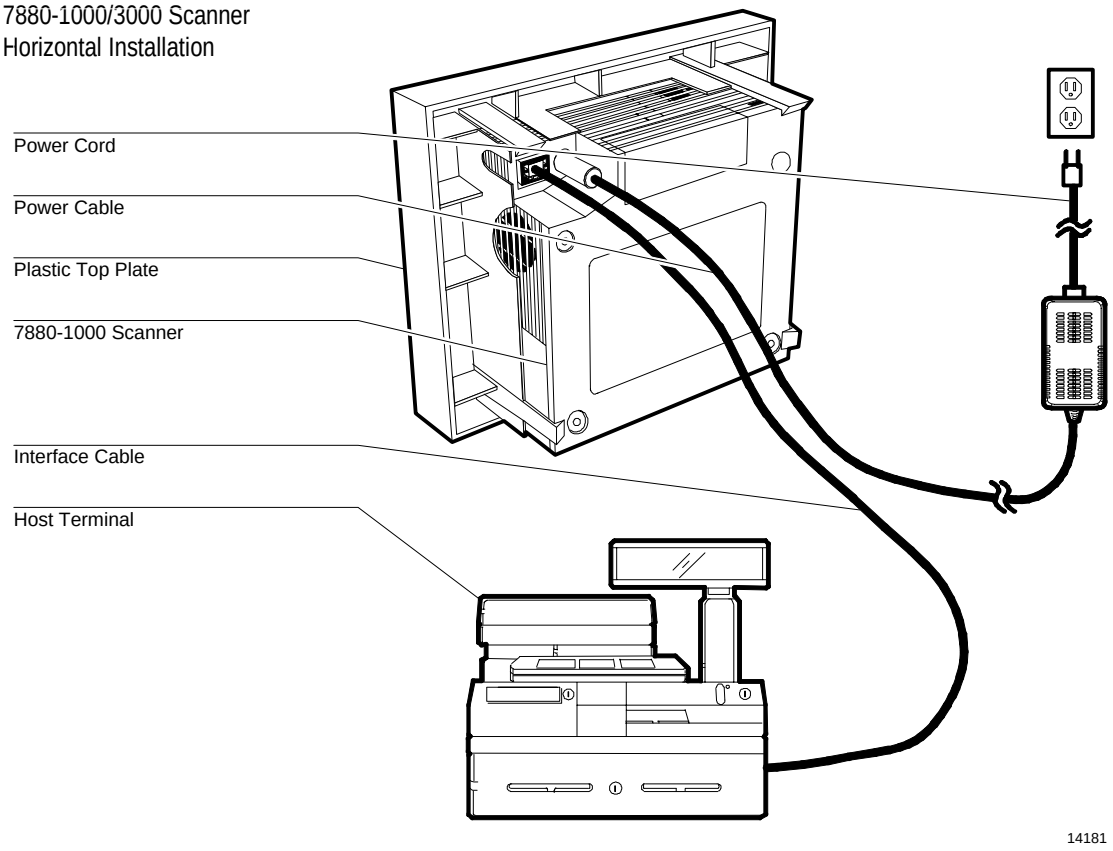
1 Install power supply at least 25.4 cm (10 in.) away from the scanner and its mount. Route power and communication cables in a desirable location in the checkstand.

2 If you are installing an NCR 7880-3000, you need to set the Scan Zone at this time. Refer to *Setting the NCR 7880-3000 Scan Zone* in this chapter.

3 Verify that the NCR 7880 power receptacle circuit breaker is OFF. Plug the AC Power Cord into the wall outlet designated for the scanner.

4 Connect the interface cable to the host terminal or PC (refer to Figure 3-3).

Figure 3-3
7880-1000/3000 Scanner
Horizontal Installation



5 Connect the Interface Cable to the square receptacle (J1) on the NCR 7880.

6 Connect the Power Cable to the round receptacle (J2) on the NCR 7880. **See note at end of this procedure**.

7 Invert the entire assembly and lower into the checkstand cutout by holding onto cutouts on the side.

8 Apply AC power to the 7880 by turning ON the checkstand circuit breaker switch.

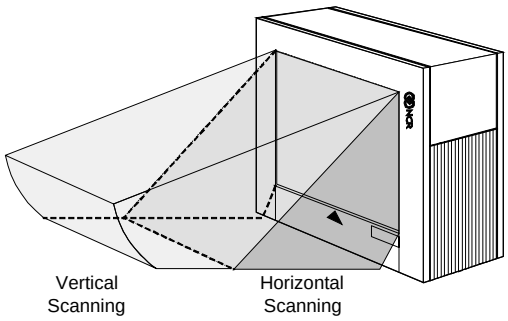
End of procedure. ■

Note: If the 7880 is getting power from a 7450 Workstation, refer to either *Auxiliary Power from a 7450 Series 1000* or *Auxiliary Power from a 7450 Series 2000* in this chapter.

Setting the NCR 7880-3000 Scan Zone

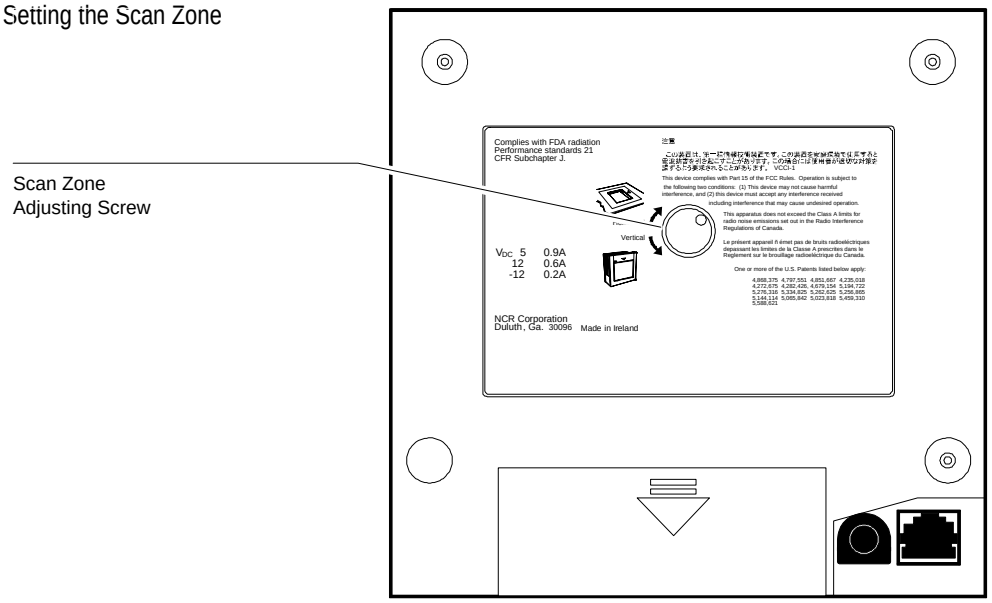
The scan zone on a 7880-3000 can be set to one of two different positions: horizontal or vertical. Changing the scan zone changes the angle of the scan lines coming from the scanner (Figure 3-4).

Figure 3-4
NCR 7880-3000 Scan Zones



You change the scan zone by turning the screw on the bottom of the cabinet (Figure 3-5). Be sure to turn the screw all the way in one direction or the other, do not leave it turned part way.

Figure 3-5
Setting the Scan Zone

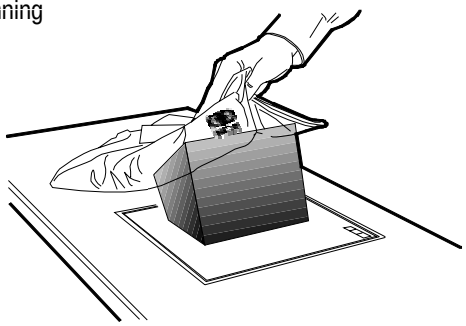


When selecting the scan zone, you must also consider how you are mounting the scanner, horizontally or vertically. This permits you to optimize the performance for your particular installation. Following are four common installations that identify the installation type and the scan zone setting. They are given in order of scanning efficiency with the first being the most efficient, and the last being the least.

Horizontal - Pass-by Scanning

This installation provides the most efficient way to scan items. It is typically used in checkouts where speed is extremely important. In this installation, the operator slides items from the input area on the checkstand, across the scanner, and to the output area on the checkstand (Figure 3-6).

Figure 3-6
Horizontal - Pass-by Scanning



Typical Installation - Hyper/Super Market

Scan Zone - Horizontal

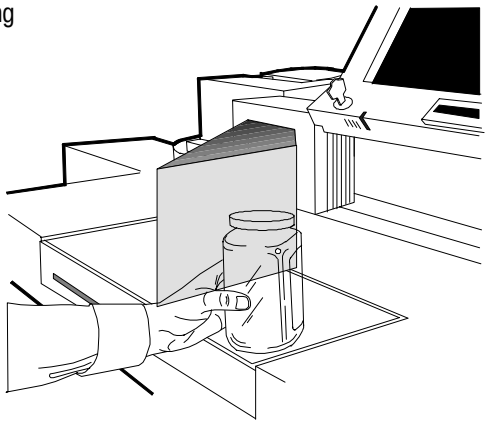
Installation - Horizontal

16012

Vertical - Pass-by Scanning

This installation is used where the checkstand is not large enough to mount the scanner horizontally, but pass-by scanning is needed. In this installation, the operator slides items from the input area on the checkstand, past the scanner, and to the output area on the checkstand (Figure 3-7).

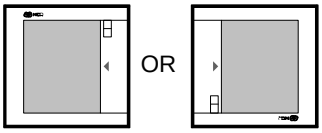
Figure 3-7
Vertical - Pass-by Scanning



Typical Installation -
Drug Stores

Scan Zone - Horizontal

Installation - Vertical

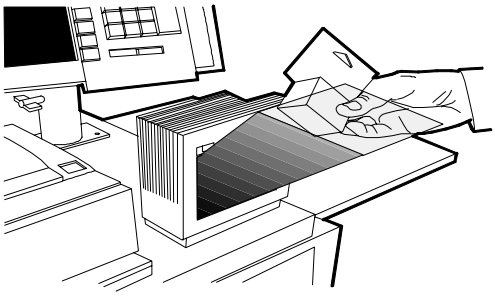


16013

Vertical - Presentation Scanning from Top

This installation is used on small checkout counters that do not have enough room for pass-by scanning. Here the operator picks up the item, presents it toward the top of the scanner, then bags the item all in one motion (Figure 3-8).

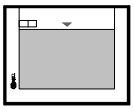
Figure 3-8
Vertical -
Presentation Scanning
from Top



Typical Installation -
Specialty Store

Scan Zone - Vertical

Installation - Vertical

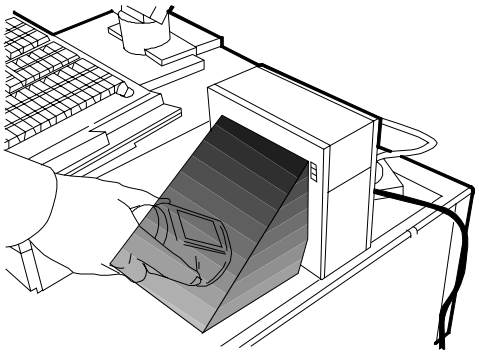


16014

Vertical - Presentation Scanning from Bottom

This installation is used on very small checkout counters. In this installation the operator picks up the item, presents it toward the bottom of the scanner, then bags the item all in one motion (Figure 3-9).

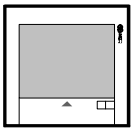
Figure 3-9
Vertical - Presentation Scanning from Bottom



Typical Installation - Convenient Store

Scan Zone - Vertical

Installation - Vertical

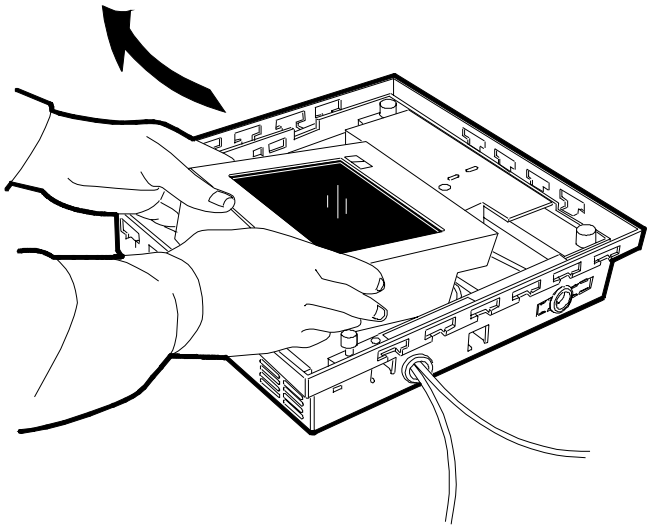


16015

Installing the NCR 7880 Scanner/Scale

1. Verify that you have the correct power cord for your electrical outlet.
2. If the unit is being installed for the first time, remove the two screws from the bottom of the scale that are used to secure the scanner during shipping. Discard the screws.
3. Install the power supply in the checkstand at least 25.4 cm (10 in.) away from the location of the scanner/scale and its mount. **See note at end of this procedure.**
4. Connect the interface cable(s) to the host terminal. Because the installation is different from one terminal to another, refer to your terminal documentation for instructions on how to connect the interface cables.
5. Route the interface cable(s) and power cable through the checkstand and bring them up through the checkstand cutout.
6. Pull the scanner away from the scale board and stand the scanner up on its edge to expose the power and interface cable connectors Refer to Figure 3-10.

Figure 3-10
Removing the Scanner from the Scale Assembly



7 If you are using an NCR 7825 Remote Display, route its cable through the checkstand and up through the checkstand cutout to the NCR 7880.

8 Pass the power cable through the grommet in the hole near the front of the right side of the scale bucket.

9 If your 7880 is equipped with a Single Cable Interface, continue to step 10. If your 7880 is equipped with an OCIA Dual Cable Interface, continue to step 15. (The OCIA Dual Cable Interface unit has a set of four square telephone type connectors near the back of the right side of the chassis.) Figures 3-11 and 3-12 show the cable connections.

Note: If you are installing a Dual Cable system that is not OCIA, you need to install an adapter. Refer to *Dual Cable Communication Adapter Installation.*

Figure 3-11
Single Cable Interface

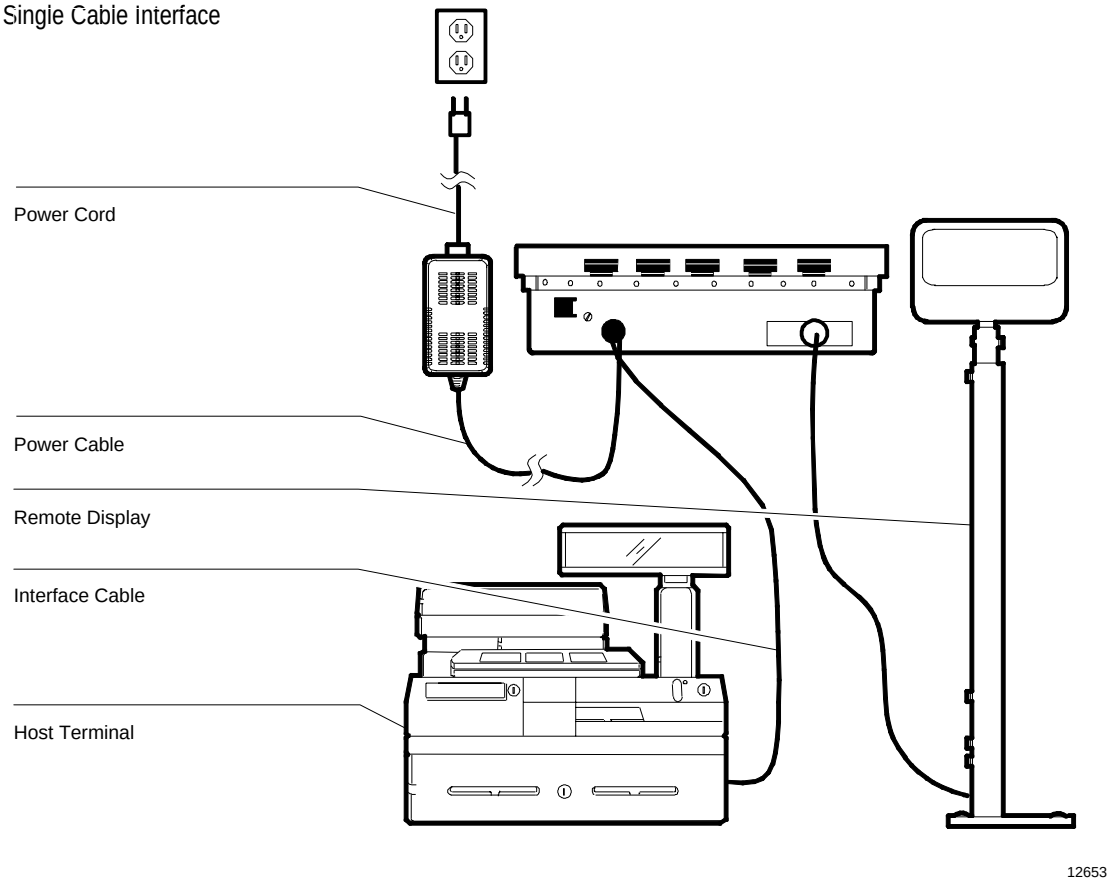
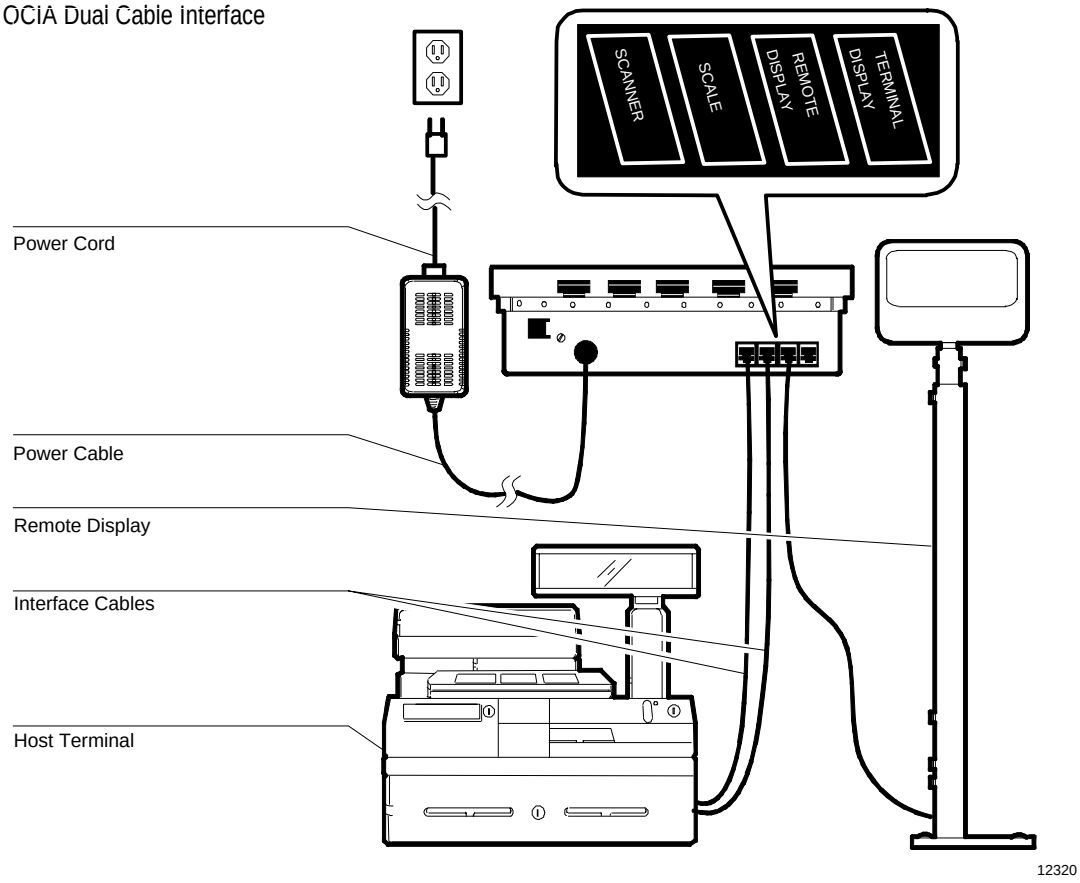


Figure 3-12
OCIA Dual Cable Interface

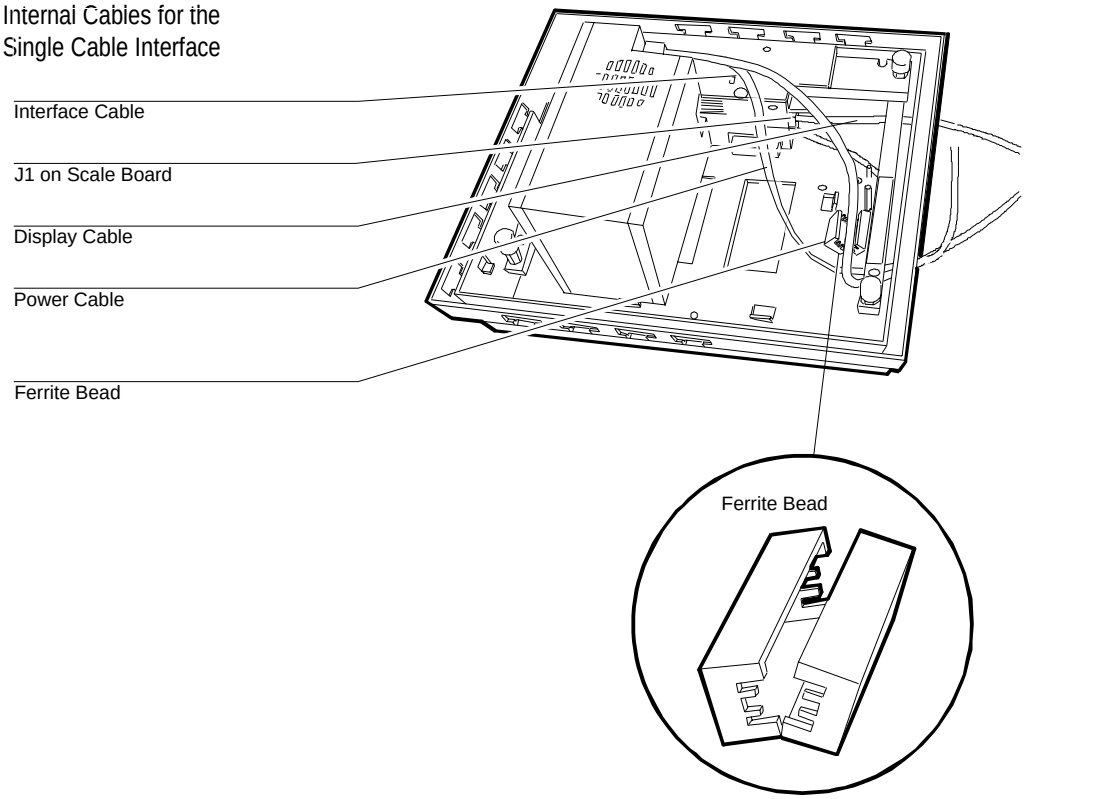


Cabling for a Single Cable Interface

10 Pass the remote display's cable through the grommet in the hole nearest the rear of the right side of the scale bucket and plug the cable into the square connector (J1) on the right edge of the Scale Board. Be sure that there are NO cable marker tags on the portion of the cable inside the scale. If you find any, cut them off.

11 Pass the interface cable through the grommet in the hole near the front of the right side of the scale bucket (Refer to Figure 3-13).

Figure 3-13
Internal Cables for the
Single Cable Interface



12 Connect the power and interface cables to the 7880, the round power cable to the round connector and the square interface cable to the square connector.

13 Carefully rotate the 7880 back down into the scale bucket (routing the interface cable through the ferrite bead in the gray plastic case on the floor of the bucket and the power cable through the clip next to the ferrite bead).

14 Continue to step 18.

Cabling for an OCIA Dual Cable Interface

15 Connect the Remote Display Cable to the connector marked remote Display near the back of the right side of the chassis.

16 Connect the Scanner and Scale cables to the connectors marked Scanner and Scale near the back of the right side of the chassis.

17 Carefully rotate the scanner back down into the scale bucket (routing the interface cable through the plastic clip next to the ferrite bead in the gray plastic case on the floor of the bucket or under the ferrite bead if there is no clip)

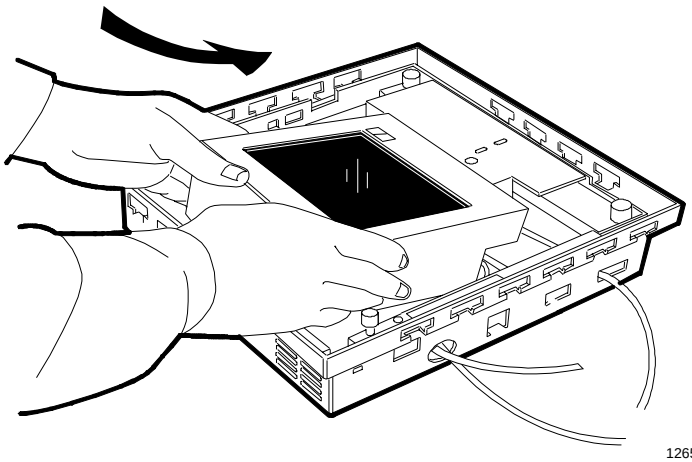
Installing Scanner into Scale Unit

18 With the connector end of the scanner pointed slightly down, line up the edge connector with the connector on the scale board, and press the back of the scanner forward and down until it pops into place. When installed, the scanner must be completely flat against the bottom of the bucket (Refer to Figure 3-14).

19 Make sure that the cables DO NOT INTERFERE with the scale mechanism. All cables must exit the bucket without any excess cable inside. If necessary, tie the cables down outside the bucket to prevent them from being pushed into the bucket.

20 Pick up the 7880 and slowly lower it into the checkstand cutout. The unit should seat on the post or flanges on each side. Also, the 7880 should have support within two inches of its corners so that it does not rock.

Figure 3-14
Installing the Scanner into the Scale Assembly



Completing the Installation

21 Remove the Top Plate Assembly from packaging.

22 Place the Top Plate Assembly onto the four supports (rubber posts). It only fits one way. The 7880 must be near level and must be stable. The leading edge of the Top Plate must be flush or up to 0.15 cm (1/16 in.) below the counter top. The trailing edge of the Top Plate must be flush or up to 0.15 cm (1/16 in.) above the counter top.

Note: Do not try to adjust the height of the Top Plate by adjusting the four support posts on the scale H-Bar. These support posts are set at the factory and changing them can affect scale accuracy.

23 Two Cable Clamps (006-0687102) are supplied with the 7880. Use these to support the cables to keep them out of the operator's way.

24 Verify the final alignment of the Top Plate with the top of the checkstand. An item should easily slide from the checkstand, across the 7880 Top Plate, and back onto the checkstand. This is shown in Figure 3-15. If adjustment is needed, adjust the 7880 support posts or the fixed flanges that support the 7880.

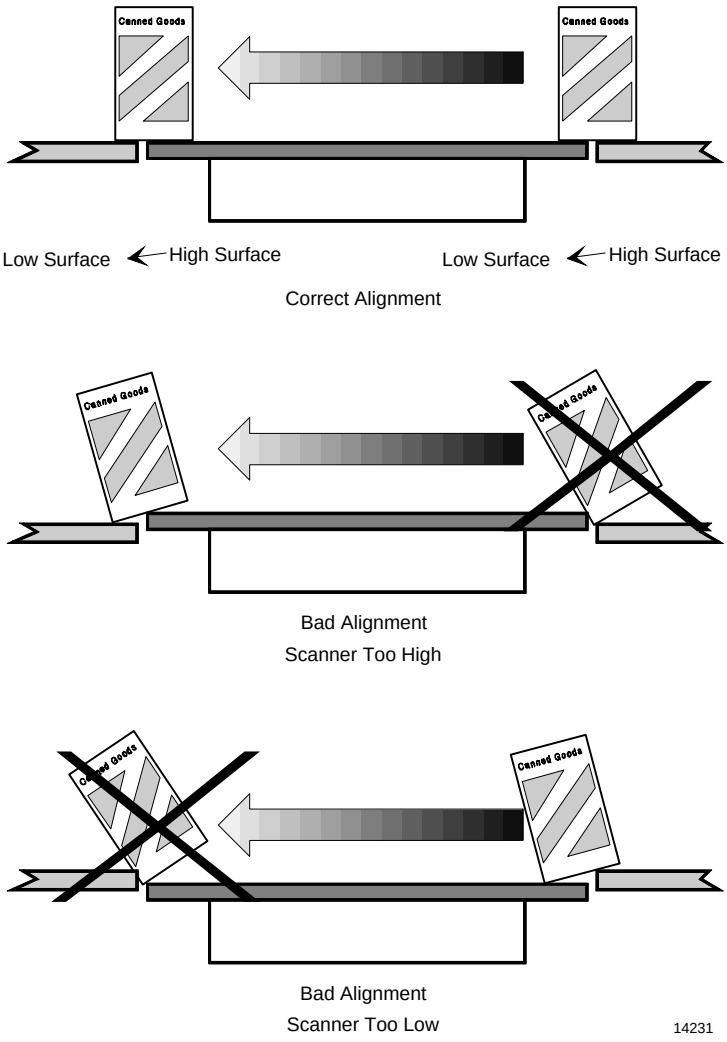
25 Verify that the circuit breaker for the 7880 power receptacle is OFF. Plug the NCR 7880 AC Power Cord into that power receptacle. Turn ON the circuit breaker.

26 Continue to *Calibrating the Scale* procedures in the next section.

End of procedure. ■

Note: If the 7880 is getting power from a 7450 Workstation, refer to either *Auxiliary Power from a 7450 Series 1000* or *Auxiliary Power from a 7450 Series 2000* in this chapter.

Figure 3-15
7880 Alignment with Checkstand

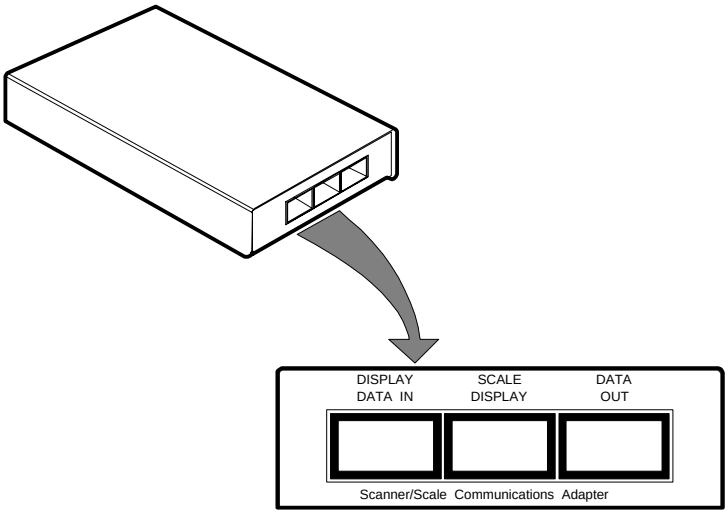


Dual Cable Communication Adapter Installation

Some Dual Cable 7880 Scanner/Scale installations require a Communication Adapter (Figure 3-16). These installations are given in the following list.

- Dual Cable, RS-232
- Dual Cable, 4-Bit Parallel
- Dual Cable, ICL-MCL
- Dual Cable, CECS

Figure 3-16
Dual Cable Communication Adapter



1. Cut the included Velcro tape into two strips and attach it to the Communization Adapter.
2. Attach the Communication Adapter to the bottom of the 7880 or the checkstand. Be sure to locate it in a position that remains dry when liquid is spilled on the checkstand.
3. Connect the communication cables

   - Short cable - From the Remote Display connector on the 7880 to the Display Data In connector on the Communication Adapter.
   - Scale communication cable - From the Scale connector on the 7880 to the Data Out connector on the Communication Adapter.
   - Scanner communication cable - From the Scanner connector on the 7880 directly to the host terminal
   - Remote Display - From the 7825 Remote Display to the Scale Display connector on the Communication Adapter.

4. Before completing the installation, you need to set the communication parameters. The following chart shows the sequence of Programming Tags that must be scanned for various configurations.

   End of procedure. ■

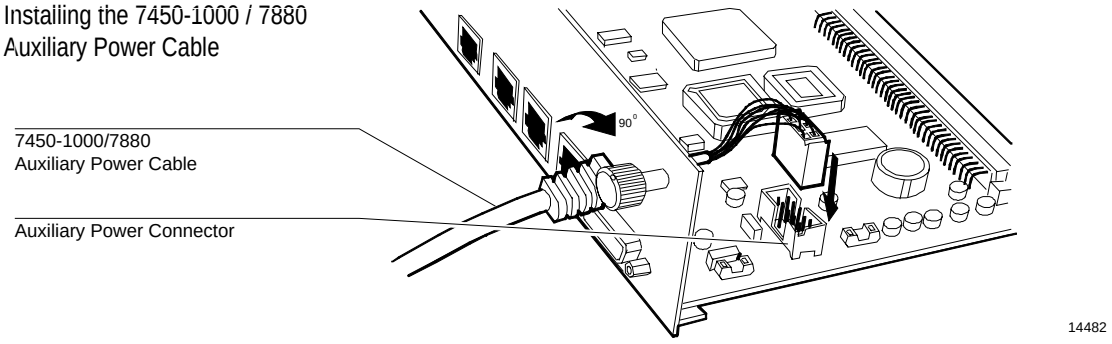
Configuration				
NCR 2170	**Casio SA-2100**	**TEC M-xxxx**	**ICL 9518-21/61/62/71**	**ICL 9518-200,9520-150**
• RS-232 scanner interface • RS-232 scale interface • Weightronix scale emulation • 9600 baud, 7-bit word, odd parity, 1 stop bit	• Non-NCR OCIA scanner interface • Casio 4-bit parallel scale interface	• Non-NCR OCIA scanner interface • TEC 4-bit parallel scale interface	• Non-NCR OCIA scanner interface • RS-232 scale interface • Avery scale emulation • 2400 baud, even parity, 1 stop bit	• RS-232 scanner interface • RS-232 scale interface • Avery scale emulation • 9600 baud, 8 bit word, even parity, 1 stop bit
Programming Tag Sequence				
Default Programming Mode Hex 1, Hex 0, Hex 5 Hex 2, Hex 1, Hex A, Hex 0 Hex 2, Hex 4, Hex 4 Hex 3, Hex 6, Hex A, Hex 2 Save and Reset	Default Programming Mode Hex 1, Hex 0, Hex A Hex 3, Hex 6, Hex A, Hex 4 Save and Reset	Default Programming Mode Hex 1, Hex 0, Hex A Hex 3, Hex 6, Hex A, Hex 3 Save and Reset	Default Programming Mode Hex 1, Hex 0, Hex 2 Hex 3, Hex 6, Hex A, Hex 1 Save and Reset	Default Programming Mode Hex 1, Hex 0, Hex 5 Hex 2, Hex 0, Hex 5, Hex 1, Hex 1, Hex 5 Hex 2, Hex 3, Hex 1, Hex 0, Hex D Hex 2, Hex 4, Hex 4 Hex 3, Hex 6, Hex A, Hex 1 Save and Reset

Auxiliary Power from a 7450 Series 1000

Obtaining power from a 7450 Series 1000 instead of the 7880 Power Supply, requires removing the Auxiliary Power Cable from inside the 7450 and installing the 7450-1000 / 7880 Auxiliary Power Cable. The Corporate Id of the new cable is 1416-C289-0030

1. Remove the existing Auxiliary Power Cable from the 7450. If the 7450 is a Release 2.x unit, the cable is on the Retail/Communication Board. If the 7450 is a Release 1.x unit, the cable is on the Communications Board. To access and remove this cable, refer to the *smartPOSTM NCR 7450 Workstation Hardware Installation & Service Release 2.2* book (BST0-2122-17).
2. Pass the rectangle connector on the new 74501000 / 7880 Auxiliary Power cable through the hole in the Printed Circuit Board Mounting Bracket. Refer to Figure 3-17.

Figure 3-17
Installing the 7450-1000 / 7880 Auxiliary Power Cable



3 Push the strain relief on the cable through the hole and then turn it 90 degrees to hold it in place.

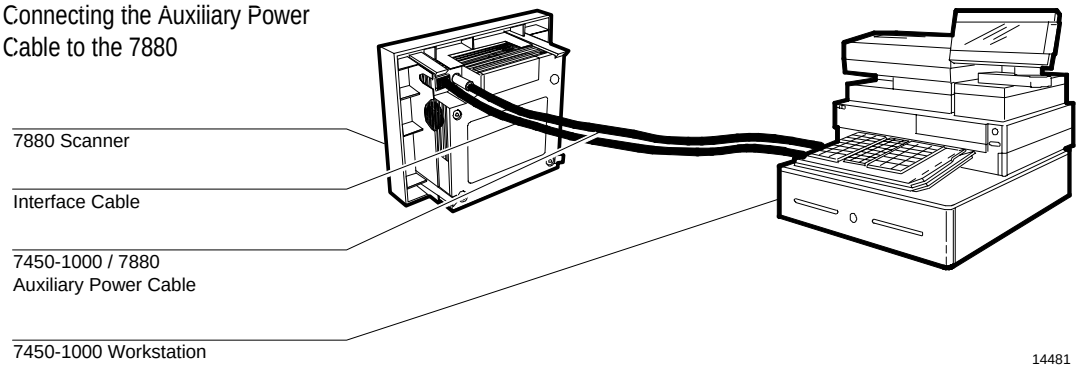
4 Connect the rectangle connector on the Auxiliary Power Cable to the same connector from where the old cable was removed.

5 Assemble the 7450-1000 Workstation.

6 Connect the Auxiliary Power Cable to the round power connector on the 7880. Refer to Figure 3-18.

End of procedure. ■

Figure 3-18
Connecting the Auxiliary Power Cable to the 7880

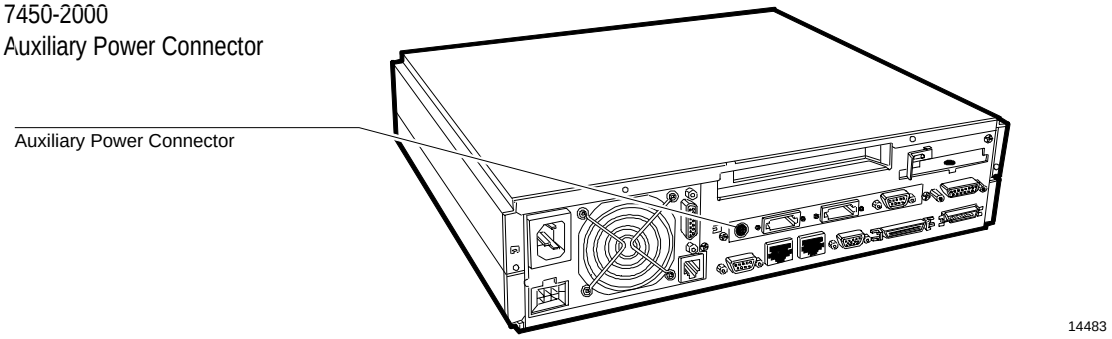


Auxiliary Power from a 7450 Series 2000

Obtaining power from a 7450 Series 2000 instead of the 7880 Power Supply, requires installing the 7450-2000 / 7880 Auxiliary Power Cable. The Corporate Id of the new cable is 1416-C288-0030.

1 Connect the host end of the 7450-2000 / 7880 Auxiliary Power Cable to the Auxiliary Power connector on the 7450. Refer to Figure 3-19.

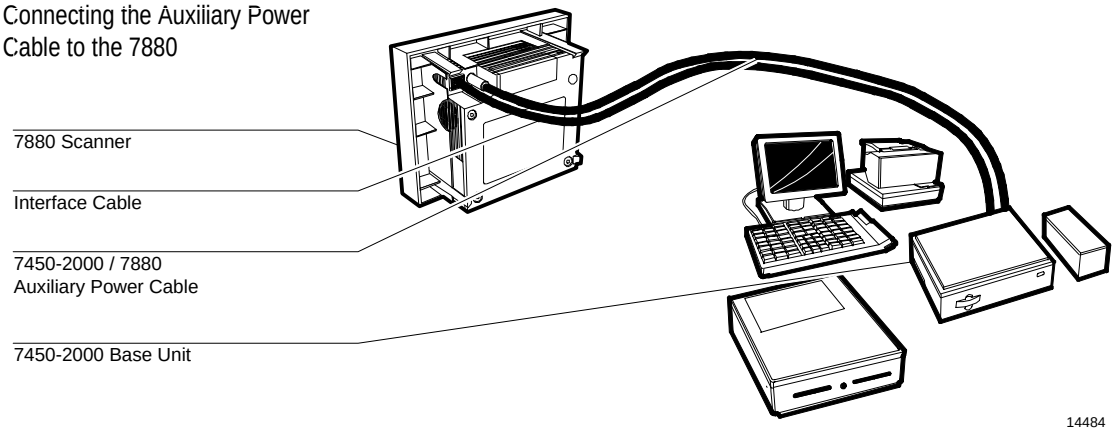
Figure 3-19
7450-2000
Auxiliary Power Connector



2 Connect the other end of the 7450-2000 / 7880 Auxiliary Power Cable to the round power connector on the 7880. Refer to Figure 3-20.

End of procedure. ■

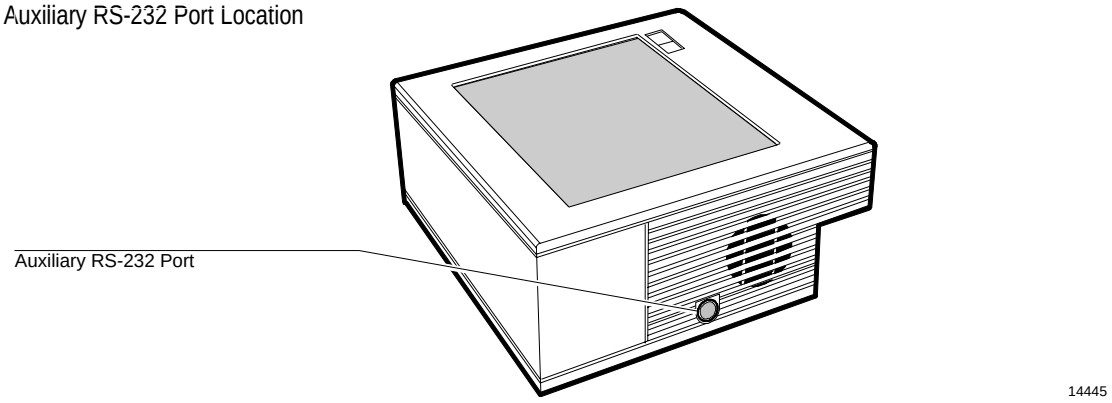
Figure 3-20
Connecting the Auxiliary Power Cable to the 7880



Auxiliary RS-232 Port

The 7880-1000 contains an auxiliary RS-232 port that is used to add another RS-232 device to the system without having to add another RS-232 port to the POS terminal. An example of its use is to add a handheld scanner to the system by connecting it to the 7880 to functions as a pass through device if there is no code ID programmed in the slave device. Label data is passed through the 7880-1000 to the POS terminal. The 7880-1000 performs this function when it is communicating with the POS terminal as an OCIA, IBM, or RS-232 device. Refer to Figure 3-21 for the location for the Auxiliary RS-232 Port.

Figure 3-21
Auxiliary RS-232 Port Location



In order to simplify operation, the 7880-1000 auxiliary RS-232 port hardware is limited to the following fixed parameters. It is NOT possible to change these communications parameters on the 7880-1000 auxiliary RS-232 port.

Baud Rate	9600
Parity	Space
Stop Bits	1
Number of Data Bits	7
Hardware Handshaking	None

Note: ASCII data cannot be sent from the auxiliary RS-232 port when the 7880-1000 is set for OCIA short format. In this case, the 7880-1000 generates an error beep.

When running the 7880-1000 with a 7836 attached, the 7836 needs to be programmed in the following manner.

- Reset to serial (default values) - Label ZA
- Enable code ID (default values) - Label FB

Note: When programming either the 7880-1000 or the 7836, you must first disconnect the communications cable between the terminal and the 7880-1000. Do not connect the communications cable until after you have made all programming changes.

Connecting a 7880 to an NCR 2170 Terminal

Programming the NCR 7880

When connecting the NCR 7880-1000/3000 Scanner to an NCR 2170 Terminal, you must set the scanner to the following RS-232 parameters.

- 9600 baud
- 1 Stop Bit
- 7-Bit character
- Odd Parity
- RTS High, Wait for CTS
- BCC disabled

Set these parameters by scanning the following sequence of Programming Tags. These must be the first tags scanned after applying power to the 7880.

1. **Default** - sets all parameters to default values.
2. **Programming Mode** - puts the 7880 in the Base Programming State.
3. **Hex 1** followed by **Hex 0** - selects the Communications Protocol programming mode.
4. **Hex 5** - selects RS-232 communications.
5. **Hex 2** followed by **Hex 1** - selects RS-232 Parameters - 2 programming mode.
6. **Hex A** - selects BCC Options parameter.

7 **Hex 0** - disables BCC on bar code data.

8 **Save and Reset** - saves the program changes.

End of procedure. ■

Setting up the 2170

Set up the 2170 according to the following procedure.

1 Connect the 7880 Scanner cable to the 2170 RS-232 port with an ID=04.

2 Set the 2170 to default RS-232 options.

3 Perform a Master Reset on the 2170 by turning the key to P2 until the menu is displayed.

End of procedure. ■

Determining if the Unit is Operational

Now that power is applied to the NCR 7880, it automatically performs Level 0 diagnostics to check various components.

After passing Level 0 diagnostics the NCR 7880 Status Indicator flashes Green, sounds a tone, and turns ON the Red Status Indicator. The NCR 7880 is now operational.

After passing Level 0 diagnostics the NCR 7880 runs scale diagnostics if the system contains a scale unit. During this time, all segments on the remote display are turned ON so the operator can verify the display works correctly. Then the display shows "Ready 0.000 kg" or "Ready 0.00 lb". The Status Indicator flashes Red momentarily, a tone sounds, then the Status Indicator turns Red. The NCR 7880 is now operational.

If the NCR 7880 is Not Operational

If an error occurs during Level 0 diagnostics, an error code is displayed on the remote display if an NCR 7825 is included with the system. There is a sequence of multiple beeps and GREEN status indicator flashes to indicate a problem. There may be some simple steps you can take to correct the problem. Refer to Chapter 5, *Troubleshooting Your NCR 7880 Scanner*. If you cannot correct the problem,

contact your sales representative for warranty information.

Checkout

To further check the tag reading operation of the NCR 7880, attempt to read a good tag on an item. The Status Indicator is Red when the NCR 7880 is ready to scan a label. A good read is indicated by the Status Indicator turning Green and a tone sounding (if enabled).

To further check the weighing operation of the NCR 7880 Scale, place a known weight item on the scale and verify the weight on the optional NCR 7825 Remote Display. If the NCR 7880 Scanner/Scale is operational, the calibration procedure and scale accuracy test **must** now be performed by a trained service representative before placing the scale into sales use. In some locations, government inspection is also required. In this case, a security seal must be placed on the unit by a representative from local Weights and Measures prior to use.

Program the NCR 7880

Your NCR 7880 comes from the factory with most of the programming parameters set to default values and the Communications Protocol set according to the specifications on your order. If you do need to make some programming changes, you might want to refer to the book titled, *NCR 7880 Scanner/Scale Programmer's Guide.*

Caution Some host terminals can corrupt the 7880 program if they are running and are connected to the 7880 while you are making program changes. Either turn off the host terminal or disconnect the interface cable before scanning any programming tags.

If the Interface Cable is provided as a kit rather than being included with the 7880, you can set the communication parameters by scanning the bar code on the label on the cable package. Standard defaults are set for most RS-232 or OCIA cables. If the cable is for a specific host terminal, all the necessary parameters required for that host terminal are set. The bar code label on the Interface Cable package must be the first bar code scanned after applying power to the 7880.

If the Interface Cable came with the 7880, the communication parameters are probably correct and you should not need to make any changes to these parameters. However, if the 7880 does not communicate with the host terminal, scan the appropriate tag from the following set of tags. This must be the first tag scanned after applying power to the 7880.

Note: When scanning bar codes on the following pages, be sure to completely cover all bar codes except the one you are scanning.

OCIA Single Cable
NCR 2127, 2154, 2155, 2156, 2157, 2760, 7050, 7051, 7052, 7053, 7054, 7450, 7070

OCIA Dual Cable
NCR 1255, 2126, 2154, 2155, 2156, 2157, 2225, 2552, 2760, 7050, 7051, 7052, 7053, 7054, 7070, 7450

OCIA Short Format
NCR 2113, 2126, 7058

OCIA Long Format
NCR 1255, 2151, 2152,
2552, 2557, 2950

IBM Format
IBM 4682/3/4,
4683/4 with Port 5B,
4683/4 with Port 17,
4693 Port 9B,
4694 Port 9E,
4693/94 with Port 5B

RS-232
6-Pin Modular,
9-Pin D Shell
NCR 2170, 7452, 7445,
ICL 9518/200, 9520/150,
MicroBilt MB-8010 Checkreader

RS-232
SNI Beetle 3L

RS-232 Gilbarco
Gilbarco Controller

RS-232 Ruby
Verifone Ruby (4M)

RS-232 Wayne
Wayne Controller

Note: If you change the Communications Protocol, you may need to change the Interface Switch setting. The interface switch identifies the type of interface being used: OCIA, IBM, RS232, and Datachecker. Refer to Chapter 5, *Troubleshooting Your NCR 7880 Scanner*, for information on the Interface Switch.

Determining the Communications Protocol

Use the following procedure to determine the communications protocol in your NCR 7880.

1. Apply power to the NCR 7880.
2. Scan the **Diagnostics** tag; must be first tag scanned after applying power.
3. Scan the **Hex 3** tag. The good read tone for this tag sounds (three beeps).

   The Status Indicator flashes Green and the tone beeps, identifying the communication protocol. The following table identifies the number of beeps that sound for each communication protocol.

Tone	Communication Protocol
1 short, high-pitched Beep	OCIA NCR Short
1 Beep	OCIA NCR Long
2 Beeps	OCIA Non-NCR
3 Beeps	IBM 468x (Address 4A)
4 Beeps	IBM 468x (Address 4B)
6 Beeps	RS-232
7 Beeps	OCIA Single-Cable
8 Beeps	OCIA Dual-Cable

4. Remove power from the NCR 7880.

   End of procedure. ■

Scale Address for IBM Communications

The NCR 7880 Scanner and Scale share a single cable used for communication with the IBM terminal. Most IBM systems have software which allows for this configuration which is called Integrated Scanner/Scale. You can check the terminal's configuration at the controller to be sure this IBM option is activated. Once chosen, the scale's address is 6E (default setting), and no other action is required other than plugging the scanner/scale's interface cable into port 17 (468x). This is the preferred and most common configuration.

For the 4682/469x series IBM terminals the NCR 7880 interface cable plugs into port 9B. This series has no port 17.

However, some older 468x systems require a dual-cable system, where one cable connects to the scanner and the other connects to the scale. The scale cable usually plugs into port 21 of a "B" or "C" feature card. It is possible to preserve the existing terminal configuration and still use the single-cable feature of the NCR 7880. **IF THERE ARE NO OTHER PORTS USED ON THE "B" OR "C" FEATURE CARD,** you can remove the feature card from the terminal even though it is configured to be installed.

- If the card was in slot 2A, program the NCR 7880 scale address to 6A and plug the NCR 7880 Interface Cable into port 17.
- If the card was in slot 2B, program the NCR 7880 scale address to 6B and plug the 7880 Interface Cable into port 17.
- If other ports besides port 21 are used on the "B" or "C" card and the other card slot is empty (2A or 2B), you can still use this procedure, but you must change the terminal configuration to define that there is a card in the empty slot and that its port 21 is connected to a scale. Program the scale to the empty slot's address (2A = 6A, 2B = 6B). The existing card's port 21 must be configured as not used and must not be removed from the terminal.

If both card slots are used on the terminal, the terminal software must be a version that can be configured to support an integrated scanner/scale. This may require upgrading the software.

Calibrating the Scale

During factory testing, the scale is calibrated one or more times to test the scale calibrating function. This calibration test is not sufficient to make the scale ready for weighing in trade. To be in compliance with governmental weights and measures regulations, you must be certified to perform the calibration function and you MUST calibrate the scale when you install the 7880 Scanner/Scale. The calibration procedure sets the device to accurately interpret the weight of an item.

Note: Some installations do not have an NCR 7825 Remote Display, but use the terminal display. If this is the case, you must use a Field Service Calibration Display (Part Number 250-0029750) when calibrating the scale, unless your 7880 has voice enabled. Calibration information is NOT sent to the host terminal.

One or more certified weight sets are required to calibrate and certify the scale. Following are the weight sets that are available from NCR.

- Whole Pound Weight Set:
  NCR Part No. 998-0633009
- Fractional Pound Weight Set:
  NCR Part No. 998-0633012
- Kilogram Weight Set:
  Obtain locally

You can calibrate the scale after power has been supplied for 30 minutes if the ambient air conditions

have been 20° C (68° F) for at least 24 hours. If this condition has not been met, then the scale must be on for at least 6 hours before you can calibrate it.

You **MUST** calibrate the scale when any of the following occur. This is a government requirement.

- Initial installation of an NCR 7880 Scanner/Scale
- Whenever the scale cannot be zeroed
- When the diagnostics indicate a calibration error
- When the Load Cell or Scale Board have been replaced

The EEPROM on the Scale Board maintains an audit trail of scale calibration. The audit trail contains an event counter that records the number of times the scale has been calibrated. You can display the audit trail count by lifting the Scale Plate and holding until the counts appear on the display. The display alternates between ***Cal xxx*** and ***PAr xxx (available*** only when the NCR 7825 Remote Display is used.)

Exercise the Scale

The scale **must** be exercised before performing the calibration.

1. Apply AC power to the 7880 for 30 minutes before proceeding.
2. Wait for the display to indicate **Ready 0.00 lb** (0.000 kg).
3. Add and remove weights to your scale in the order given in the following chart. (You may place them on the glass.) This a building procedure in which you start with no weight on the scale (0) on the scale, and then sequentially add and remove weight.

Weight Feature	Total Weight on Top Plate						
9.995 kg	0 kg	2.5 kg	5 kg	10 kg	5 kg	2.5 kg	0 kg
13.995 kg	0 kg	2.5 kg	5 kg	15 kg	5 kg	2.5 kg	0 kg
30.0 lb.	0 lb.	5 lb.	15 lb.	30 lb.	15 lb.	5 lb.	0 lb.

4. Repeat Step 3 three times.

End of Procedure. ■

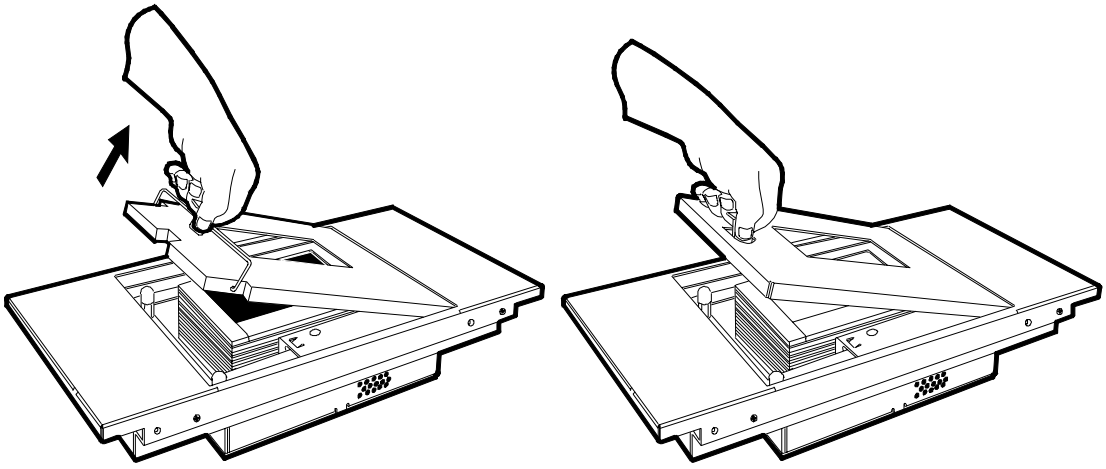
Accessing the Calibration Switch

The Scale Calibration Switch is located on the Scale Board. For calibration security reasons, this switch is not readily accessible. A lead/wire or paper seal may have been installed for scale certification security. Perform the following procedure to access the Calibration Switch.

1 Remove AC power from the 7880.

2 Remove the Scale Plate Assembly (Figure 3-22).

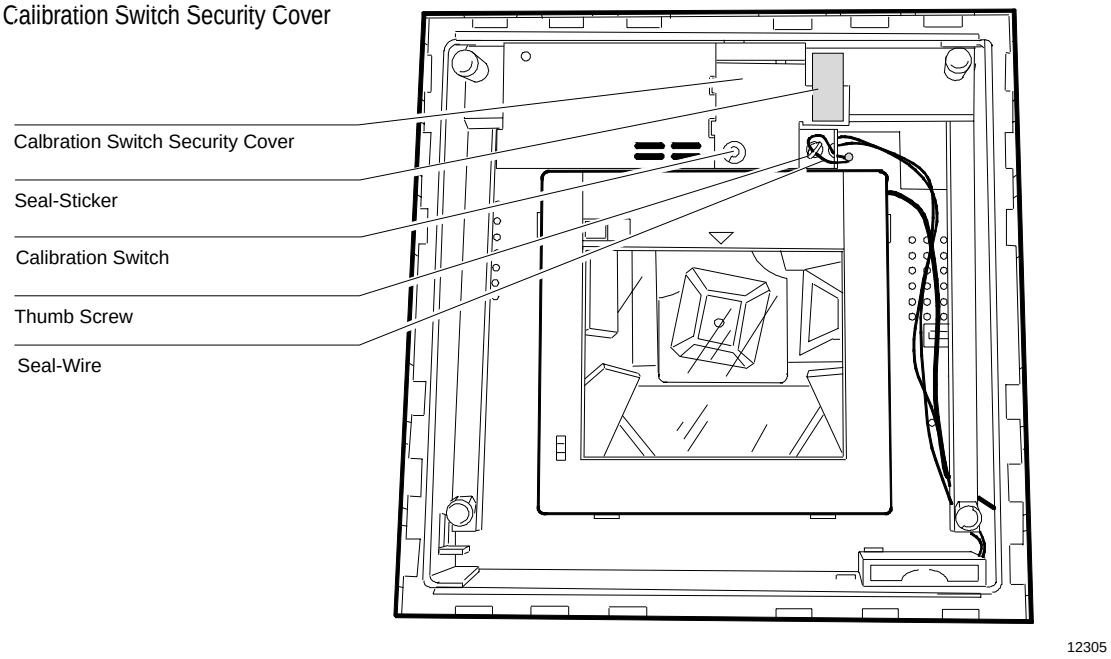
Figure 3-22
Removing the Scale Plate Assembly



3 Remove the seal from the Calibration Switch Security Cover (Figure 3-23).

4 Remove the Calibration Switch Security Cover.

Figure 3-23
Caliibration Switch Security Cover



5 If the 7880 has an NCR 7825 Remote Display attached to it, skip to step 10.

6 Remove the 7880 from the checkstand.

7 If this is a single cable unit, connect the Field Service Calibration Display to the square connector (J1) on the right edge of the Scale Board using the NCR 7880 Field Calibration Display Harness. If this is a dual cable unit, connect the display to connector marked Remote Display near the back of the right side of the chassis. Refer to Figure 3-12.

8 Route the display cable so that the scale can be placed in its operational position.

9 Return the 7880 to the checkstand.

10 Install the Scale Plate Assembly.

End of this procedure. ■

Calibrating

The scale firmware controls calibration. The firmware waits for you to respond to the prompt before going on to the next step. When you have placed the weight on the Top Plate and the firmware has determined that the measurement of the weight is acceptable, the firmware sounds a single tone and changes the display to the next prompt. If you place the wrong weight on the scale, the firmware waits until you get it right.

If you wish to end the procedure for any reason before you have completed the calibration, you may turn the unit off. However, if you do this, you must still calibrate the scale before using it.

The pounds and kilograms figures in this procedure are not meant to be equivalent values. They are intended to be the weights to use for the unit of measure programmed in the scale.

1 Apply power to the 7880.

2 Lift the Top Plate Assembly slightly and hold it there. Record the **Cal** and **PAr** values shown on the display.

3 Press the white calibration switch SW1. The display changes to **Ready C 0.00 lb (**0.000 kg**)**.

4 Return the Top Plate Assembly to its normal position.

5 Change the weight on the Top Plate in the sequence shown in the following chart, when directed to do so by the scale's voice messages or the displayed messages.

Display	Add Weight	Remove Weight
Ready C-2.5 kg (05 lb.)	2.50 kg 95.00 lb.)	
Ready C-05 kg (15 lb.)	2.50 kg (10.00 lb.)	
Ready C10 kg (30 lg.)	5.00 kg (15.00 lg.)	
Ready C-00 kg (00 lb.)		10.00 kg (30.00 lb.)
Ready 0.000 kg (0.00 lb.)		

End of Procedure. ■

Verifying Calibration

The following tests meet government requirements of testing the initial accuracy of the scale after performing a scale calibration. There are a series of four tests that use both the Whole and Fractional Pound weight sets or the Kilogram weight set.

- Increasing Load Test
- Over-capacity Test
- Decreasing Load Test
- Shift Test

This procedure assumes that the power is still on from the calibration procedure and that the Field Service Calibrations Display is still connected if it was used. Perform the tests in the following sequence. The scale MUST NOT return to zero at any time during this procedure. If any step in this sequence fails, re-calibrate the scale.

Increasing Load Test

This test checks the scale's accuracy when incrementally adding weight to the center of the Top Plate. Using weights that correspond to the 7880 weight feature, add and remove weights as specified in the following chart. The displayed weight must match that shown.

Step	Weight Feature	Add Weight	Remove Weight	Display
1	9.995 kg 13.995 kg 30.0 lb.	0.1 kg 0.1 kg 0.2 lb.		0.1 ± 0.00 kg 0.1 ± 0.00 kg 0.2 ± 0.00 lb.
2	9.995 kg 13.995 kg 30.0 lb.	2.5 kg 2.5 kg 5.0 lb.	0.01 kg 0.01 kg 0.2 lb.	2.5 ± 0.00 kg 2.5 ± 0.00 kg 5.0 ± 0.00 lb.
3	9.995 kg 13.995 kg 30.0 lb.	2.5 kg 4.5 kg 5.0 lb.		5.0 ± 0.005 kg 7.0 ± 0.005 kg 10.0 ± 0.01 lb.
4	9.995 kg 13.995 kg 30.0 lb.	2.5 kg 3.0 kg 10.0 lb.		7.5 ± 0.005 kg 10.0 ± 0.005 kg 20.0 ± 0.01 lb.
5	9.995 kg 13.995 kg 30.0 lb.	2.495 kg 3.995 kg 10.0 lb.		9.995 ± 0.005 kg 13.995 ± 0.005 kg 30.0 ± 0.01 lb.

Over-Capacity Test

The Over-capacity Test checks for the proper indication from the scale when too much weight is placed on the Top Plate.

Note: This test must immediately follow the Increasing Load Test; do not remove any of the weights prior to running this test.

Place additional weight on the center of the Top Plate as shown in the following chart. Use the weight that corresponds to the 7880 weight feature. The display shows a series of dashes to indicate an over-capacity condition.

Step	Weight Feature	Add Weight	Remove Weight	Display
1	9.995 kg	0.04 kg		--.---
	13.995 kg	0.04 kg		--.---
	30.0 lb.	0.08 lb.		--.---
2	9.995 kg		0.04 kg	9.995 ± 0.005 kg
	13.995 kg		0.04 kg	13.995 ± 0.005 kg
	30.0 lb.		0.08 lb.	30.0 ± 0.001 lb.

Decreasing Load Test

The Decreasing Load Test tests the accuracy of the scale under conditions of decreasing loads.

Note: This test must immediately follow the Over-Capacity Test; do not remove any of the weights prior to running this test.

Change the weight on the Top Plate according to the following chart. The Display column shows the acceptable values after each weight change.

Step	Weight Feature	Add Weight	Remove Weight	Display
1	9.995 kg		2.495 kg	7.5 ± 0.005 kg
	13.995 kg		3.995 kg	10.0 ± 0.005 kg
	30.0 lb.		10.0 lb.	20.0 ± 0.01 lb.
2	9.995 kg		5.0 kg	2.5 ± 0.00 kg
	13.995 kg		7.5 kg	2.5 ± 0.00 kg
	30.0 lb.		15.0 lb.	5.0 ± 0.00 lb.
3	9.995 kg	0.1 kg	2.5 kg	0.1 ± 0.00 kg
	13.995 kg	0.1 kg	2.5 kg	0.1 ± 0.00 kg
	30.0 lb.	0.2 lb.	5.0 lb.	0.2 ± 0.00 lb.
4	9.995 kg		0.1 kg	0.0 ± 0.00 kg
	13.995 kg		0.1 kg	0.0 ± 0.00 kg
	30.0 lb.		0.2 lb.	0.0 ± 0.00 lb.

Shift Test

The Shift Test involves moving the weights off the center point of the Top Plate to check for continued accuracy. This test uses the same weights for both 9.995 kg and 13.995 kg units.

1 Place 5 kg (15 lb.) weight on the Top Plate.

2 Move the weights to position two on the Top Plate. Refer to Figure 3-24. The display should show 5.0 ± 0.005 kg (15.0 ± 0.01 lb.).

3 Repeat Step 2 for positions 3, 4, and 5.

4 Move the weights to position one again.

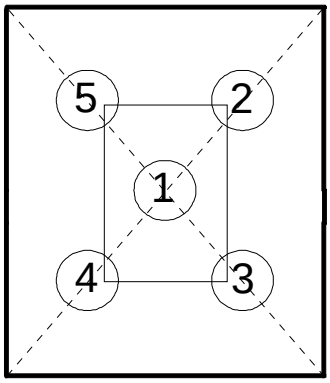
5 Remove all the weights. The display should read 0.000 ± 0.000 kg (0.00 ± 0.00 lb.).

6 Lift and hold the Top Plate and record the **Cal** and **Par** values shown on the display.

7 Return the Top Plate to its normal position.

End of this procedure. ■

Figure 3-24
Weight Positions



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Securing the Calibration Switch Security Cover

1. Remove AC power from the 7880.
2. Remove the Top Plate.
3. If you used the Field Service Calibration Display, disconnect it.
4. Install the Calibration Switch Security Cover and secure it with the thumb screw.
5. Seal the Calibration Switch Security Cover with one of the following seals.

   - Lead/Wire Seal (Part Number 603-8001097) using the Lead/Wire Seal Press (Part Number 603-9000157)
   - File/Paper seal (Obtain locally - Must meet the requirements of your local Government)

Note: When you perform a scale certification, someone must attach a seal to the Calibration Switch Security Cover (Figure 3-23). Depending on your local laws, Weights And Measures may be required to attach the seal. Also, in the United States and Canada, the audit trail can serve as an acceptable security seal.

6. Set the Top Plate on the scale assembly so the bumpers enter the locating sockets.
7. Apply power to the 7880.
8. Verify that the display indicates **Scale Ready 0.00 lb (**0.000 kg**)**.

End of Procedure. ■

Convenience Store Installations

The 7880 Scanner, mounted either vertically or horizontally, is the scanner of choice for use in a convenience store. Convenience stores require high performance scanning because there are many small orders which can result in many customers in line. This often requires scanner performance similar to a supermarket. To help satisfy this market, you can order the 7880 Scanner already programmed for use with four different non-NCR terminals. When ordering one of these features, you also need to order the interface cable. The following table identifies the four terminals, the interface cable, and the port for connecting the cable. Also included are the program parameters set at the factory. These are the parameter values that are different than the standard default values.

Feature	Host Terminal	Interface Cable	Port	Programming Parameters
F250	Gilbarco TCR-15	1416-C237-0040	Gilbarco console J207 wand reader	Communications Protocol • RS-232 RS-232 Parameters - 1 • 2400 Baud • Even Parity • RTS Low / CTS Ignored RS-232 Terminator Byte • 0D ASCII Code

Feature	Host Terminal	Interface Cable	Port	Programming Parameters
F251	Wayne Plus 3 System	1416-C236-0040	Wayne terminal Scanner Port	Communications Protocol • RS-232 Bar Codes - 1 • Enable Extend UPC-E to UPCA
F252	Verifone Ruby System	1416-C254-0040	Verifone Terminal Com 6 or Com 1	Communications Protocol • RS-232 Bar Codes - 1 • Enable Extend UPC-E to UPCA RS-232 Parameters - 1 • 1200 Baud • No Parity • 1 Stop Bit, 8-Bit Character • RST Low, Wait for CTS RS-232 Terminator Byte • 0A ASCII Code
F255	Siemens Nixdorf	1416-C236-0040	Com 2	Communications Protocol • RS-232 RS-232 Parameters - 1 • 1 Stop Bit, 8-Bit Character

Chapter 4

Operating Your NCR 7880 Scanner/Scale

Scanner/Scale Components

Before using the NCR 7880, you should be familiar with some of its components (Figures 4-1 and 4-2). This section describes the major components of the NCR 7880 Scanner/Scale.

Figure 4-1
Scanner Components

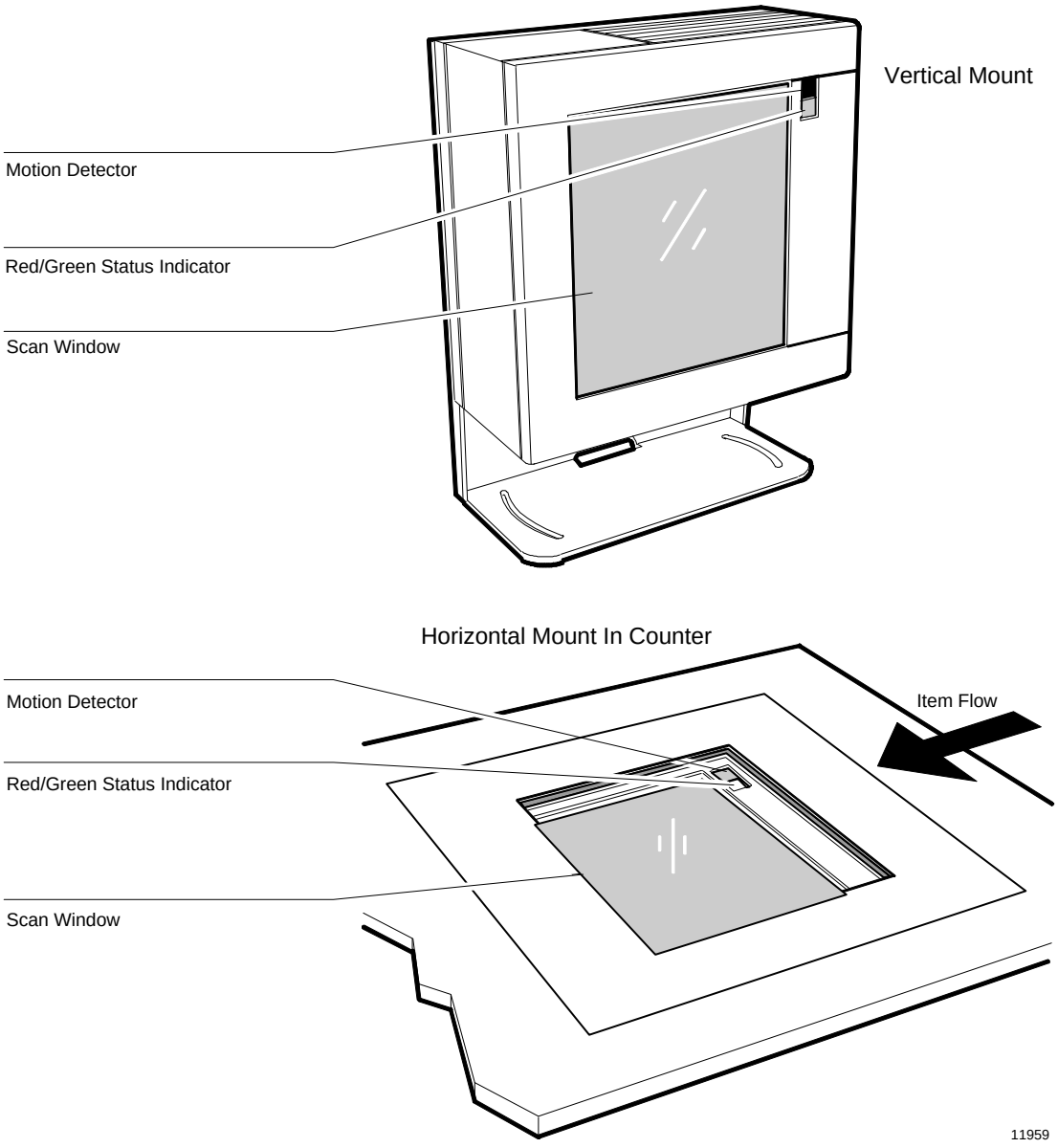
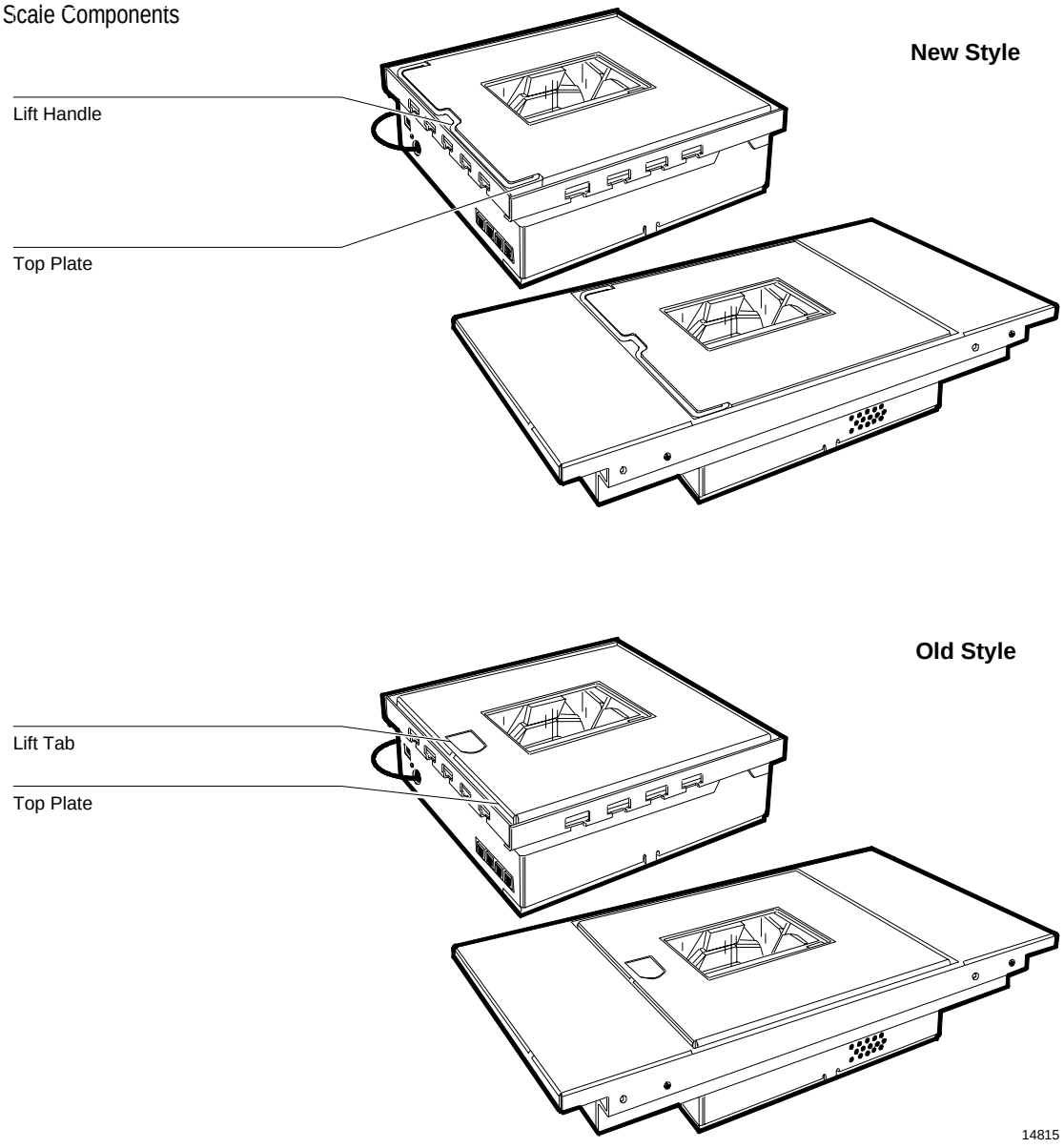


Figure 4-2
Scale Components



Scan Window

The NCR 7880 contains a scan window that is flush-mounted in the plastic top cover. An optional Plastic Top Plate is available with scratch resistant glass, diamond coated armored glass, and scratch proof sapphire glass. The window is flush with the Top Plate when mounted in the NCR 7880 Scale.

Status Indicators

The bicolor Status Indicator is located on the scanner top cover. When the Status Indicator is Red, the unit is in standby mode waiting to read a bar code. When the NCR 7880 accurately reads a bar code, the Status Indicator toggles to a flashing Green. After a good-read the NCR 7880 is ready to read the next bar code when the Status Indicator toggles Red. If the scanner does not detect another bar code for an extended period of time (the default period is 15 minutes), the Status Indicator remains Red. There is no indication that the NCR 7880 has shut down, except that the motor has stopped.

During power up, if the unit goes into the failure mode, the Status Indicator flashes Green in a repeated pattern. There is a gap of three seconds between each pattern. The number of flashes represents a particular scanner error code. Service representatives use this error code to repair the unit.

When using IBM communications, the Status Indicator flashes Red when the NCR 7880 is off line. This happens when the IBM host terminal has not established communications with the NCR 7880, the

host terminal is not turned on, or the interface cable is not connected.

Motion Detector

The motion detector is located on the scanner top cover next to the Status Indicator. To prolong the life of the scanner, when there is no operator activity for an extended time (the default period is 15 minutes), the laser diode and motor are turned off. This state is called the Sleep Mode. When the scanner is in Sleep Mode, the bicolor Status Indicator remains Red. To turn on the scanner, an object must pass over the motion detector.

Zeroing the Scale

Normally, the scale automatically re-zeros itself when there is no weight on the Top Plate. If the NCR 7825 remote display is blank or indicates a weight other than zero, yet no weight is currently on the scale, you can zero the scale by raising the Lift Bar and lifting the top plate up about 7.6 cm (3 in.) and then lowering it. One audible beep sounds when you raise the top plate, and another sounds when you lower it, to let you know that the scale zeroed itself.

If the error code 5 ---- displays on the NCR 7825 Remote Display, remove any weight from the scale and zero the scale. If the error code persists, re-calibrate the scale before proceeding.

Note: Older scale units do not have a Lift Bar. On these units, use the Lift Tab to raise the Top Plate

Remote Display

Since the 7880 does not have an integrated display, to display weight it must be connected to an external display. Normally, this is the remote NCR 7825 Liquid Crystal Display. However, the 7880 can use the display in some host terminals.

The display is also used to display error codes to indicate specific scale failures. When an error code is displayed, the scale does not operate until the error is corrected.

During calibration, certain messages are displayed on the remote display which indicate the weight you must place on the scale. Inspection Audit Trail information relating to calibration and parameter changes is also displayed when the scale is zeroed.

Audible Tone

You can program a tone to sound when the NCR 7880 accurately reads a bar code. The tone provides a means of determining a good read without having to observe the bicolor Status Indicator.

The "Good Read" tone can be enabled or disabled through programming. If the tone is enabled, you can also specify its frequency, volume and duration. The details for programming the tone are described later in this Chapter and in more detail in a separate book titled, *NCR 7880 Programmer's Guide*. The NCR 7880 comes from the factory with the tone enabled.

Voice Messages

The 7880 uses voice messages for diagnostics, scale calibration, and clerk messages. If you want to disable or enable voice, scan the programming tags identified in the following table. These tags must be the first tags scanned after applying power to the unit.

All Voice Messages Off / On (Toggle). Scan the following tag sequences
Programming Mode
Hex 3
Hex 2
Hex D
Save and Reset

Clerk Messages On. Scan the following tag sequence	**Clerk Messages Off. Scan the following tag sequence**
Programming Mode	Programming Mode
Hex 3	Hex 3
Hex 3	Hex 3
Hex 1	Hex 0
Save and Reset	Save and Reset

Because the clerk messages are a subset of the All Voice Messages, disabling all voice messages disables the clerk messages also. If the clerk messages were enabled when you chose to disable all voice messages, when you re-enable all voice messages the clerk messages are also re-enabled. When voice messages are disabled, the 7880 uses audio tones (beeps) to indicate error conditions.

Following are the clerk messages.

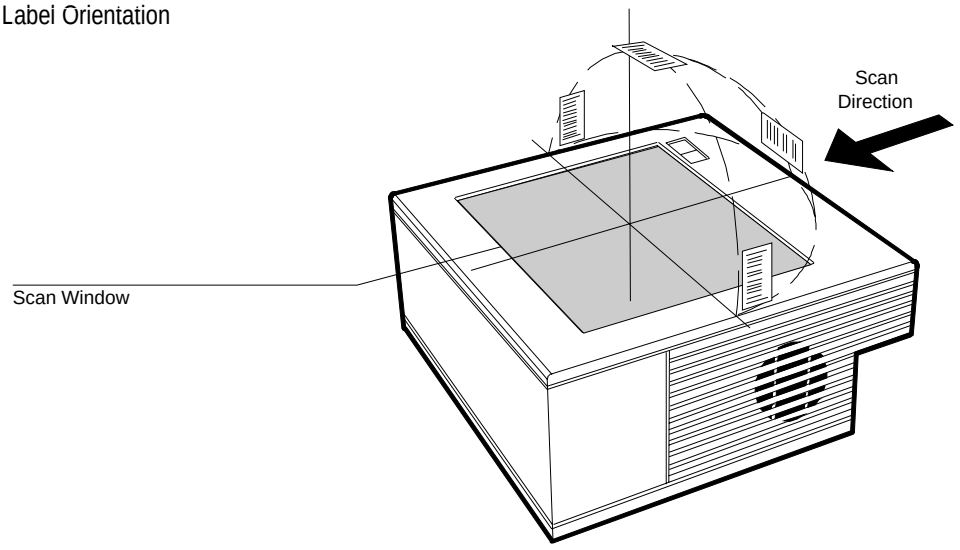
- Scale failed, clean scale deck.
- Scale failed, code 5 clean under scale deck.
  - Next, do scale calibration.
  - Next, change scale board.
  - Next, change load cell.

- Scale failed, code 4.
  - Stop checkstand mechanical vibration.
  - Next, change scale board.
  - Next, change load cell.

Proper Label Orientation

The NCR 7880 reads the labels on the leading side of a package and the bottom side (Figure 4-3). Products can be read from left-to-right or right-to-left in the horizontal position. When the NCR 7880-1000/3000 is mounted vertically the scan direction is dependent on the mounting position of the scanner.

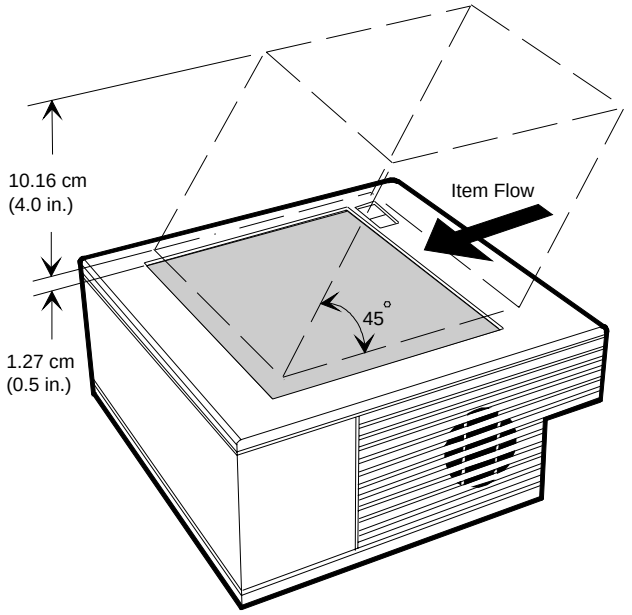
Figure 4-3
Label Orientation



Active Scan Zone

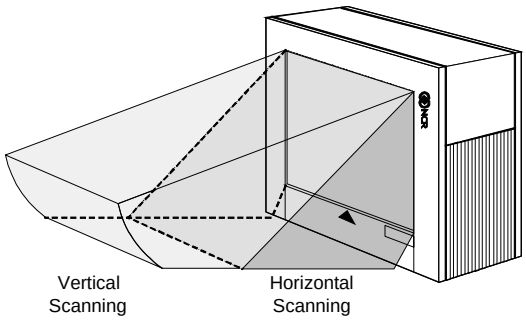
On a 7880-1000, the active scan zone is a slanted rectangular volume over the Scan Window. The scan zone is slanted 45 degrees toward the Status Indicator and Motion Detector (Figure 4-4).

Figure 4-4
Scan Zone - 7880-1000



The active scan zone on a 7880-3000 can be adjusted to one of two positions. Both provide a rectangular volume over the Scan Window. In the horizontal position, the scan zone is slanted 50 degrees; in the vertical position, the scan zone is slanted 35 degrees (Figure 4-5).

Figure 4-5
Scan Zones - 7880-3000



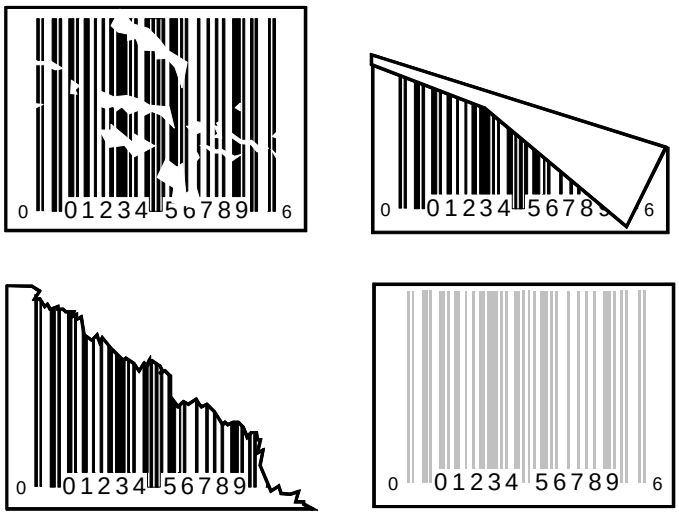
Multiple Reads

Only one good read is reported if a label enters the scan zone and left there. The scanner firmware inhibits a second read of the same label if it occurs within a preset time of a good read. The preset time is tag selectable from 250 ms to 1500 ms, with increments of 50 ms. The unit is set at 750 ms when shipped from the factory. To read the label a second time, remove the label from the scan zone and scan the label again after the time out period has elapsed.

Bar Code Quality

Many labels in a typical retail environment are unreadable (Figure 4-6). Vendors and printers regularly supply products to the market with bar codes that are overprinted, underprinted, truncated, or have poor color contrast. Some labels have missing margins. Others may be printed around the corners of packages, or on media not likely to remain flat when picked

Figure 4-6
Bad Bar Codes



R0026

The readability of a label depends on variables such as sizing, placement, color, paper type, ink viscosity, and package coatings. The middle of a printing run can yield erroneous labels due to the many variants involved. In particular, poor color contrast and marginal print quality can make a label hard to read. Some typical examples of good quality bar code labels are shown in Figure 4-7. The examples shown are Code 39, UPC, Code 128, and Interleaved 2 of 5 bar code labels.

A label should be considered readable if it meets or exceeds the requirements set forth in the *UPC Symbol Specification* put out by the UPC Council, Inc. and dated March 1982, and the *General Specification for Article Symbol Marking*, Copyright EAN-1977.

Figure 4-7
Examples of Good Bar Codes

UPC-A

Code 39

Code 128

Interleaved 2 of 5

Operation Instructions

This section provides information on using the NCR 7880 Scanner/Scale.

Power Up

The NCR 7880 has no ON/OFF switch. The checkout counter requires a circuit breaker switch that is accessible and located near the operator. Turn the NCR 7880 ON by turning the circuit breaker switch ON. When the 7880 is powering up, the unit tests itself to make sure it is operating properly.

When you supply power to the NCR 7880, it performs specific diagnostics that check various components. If a scale error occurs during these diagnostics, an error code displays on the NCR 7825 Remote Display. Call your supervisor, your service company, or NCR Customer Services for assistance. If a scanner error occurs during these diagnostics, an error code tone sounds and the Status Indicator flashes indicating the error.

For the NCR 7880 Scale if no errors occur, the NCR 7880 enters Startup Mode. The Status Indicator turn Red, and all segments on the display turn on for five seconds.

Momentarily, the Status Indicator flashes Green, a tone sounds, and the NCR 7825 Remote Display reads “SCALE READY 0.000 kg” or “SCALE READY 0.00 lb”. The Status Indicator then turns Red and the NCR 7880 can be used.

For the 7880 Scanner if no errors occur, the NCR 7880 enters the Startup Mode. The Status Indicator flashes Red, then it flashes Green and a tone sounds. The Status Indicator then turns Red and the NCR 7880 can be used.

Scanning Procedure

To use the scanner, the item must pass through the active scan zone. Item orientation, motion, and sequential handling are required for proper scanner operation. Keep in mind the scan pattern shown in Figure 4-3 when passing items through the active scan zone.

To scan items, use the following procedure:

1. Verify the scanner is operable (Status Indicator is Red and the motor is spinning).
2. Pick up the item and locate the bar code label.
3. Orient the label so that it can be detected by the scan zone.
4. Pass the item across the Scan Window within the active scan zone.
5. If a good read occurs, the Status Indicator turns Green and a tone is emitted, if programmed.
6. If a good read does not occur, no light or sound indication is given by the scanner.
   - Scan the item again.
   - If a good read still does not occur, manually enter information for the item. Then continue to scan.

End of procedure. ■

Not-On-File Error

The Not-On-File feature is available on the NCR 7880 only if your terminal has this capability. If a label is not in the price lookup file, a special tone sounds three times a second and the Status Indicator flashes Red. The volume of the "Not-On-File" tone is programmable.

The scanner cannot read any additional tags until the Not-On-File error is cleared. To clear, press the terminal CLEAR key and manually enter the item and price.

Weighing Procedure

The NCR 7880 Scale has a maximum settling time of 0.90 seconds for items that weigh 2.27 kg (5 lb) or less, and a maximum settling time of 2 seconds for items that weigh over 2.27 kg (5 lb). The scale does not function for items that weigh over 9.995 kg (30.01 lb).

Note: NCR 7880 Scales installed in Australia can weigh up to 13.995 kg.

Weigh items using the following procedure:

1. Verify the display reads SCALE READY 0.000 kg (SCALE READY 0.00 lb) and the Status Indicator is Red.
2. If SCALE READY 0.000 kg (SCALE READY 0.00 lb) is not displayed, reset the scale by tilting the Top Plate and replacing. If this does not work, turn the scanner circuit breaker OFF and then ON.

3. Pick up the item and place it in the center of the Top Plate. Whatever is weighed must fit fully on the Top Plate. If your unit has a Lift Bar, raise it to support large items. Make sure the item being weighed is completely on the Top Plate and the Lift Bar. The item weight is displayed on the NCR 7825 Remote Display and communicated to the terminal. Enter item/weight information as appropriate for your POS system.
4. The Status Indicator momentarily flashes Green, a good-weigh tone sounds, then the Status Indicator turns Red to indicate a good weigh. No change indicates a bad weigh.
5. If a bad weigh occurs, weigh the package again. The scale must indicate 0.000 kg (0.00 lb) before a weight operation is performed.
6. If the Status Indicator is still Red, remove the item from the Top Plate. Then remove the Top Plate and check for debris under it or around the edges.
7. If there is, remove debris and clean Top Plate.
8. Replace the Top Plate. Then tilt the Top Plate and replace to zero the scale.
9. Wait for the SCALE READY 0.000 kg (SCALE READY 0.00 lb) message to be displayed. When it is displayed, weigh the item again.
10. If the Status Indicator is still Red, contact your supervisor, your service company, or NCR Customer Services.

End of procedure. ■

Changing the Good Read Tone Volume

If the Good Read Tone is turned on, you might find that you need to change the volume at different times during the day. You can accomplish this easily with just two programming tags: Volume Adjustment and Reset. To change the volume, perform the following procedure.

1. Scan the **Volume Adjustment** programming tag. Repeatedly scan this tag until the volume is at the level you want.
2. Scan the **Reset** tag. This saves the volume level you just set.

End of procedure. ■

Miscellaneous Programming Changes

There are a few programming parameters that you may want to change to improve your efficiency at using the scanner. Following is a description of each of these parameters. Refer to Appendix A, *Programming Worksheets*, when making any programming changes.

Not-On-File Tone Volume

If your terminal has the Not-On-File feature, a special tone sounds three times a second if a scanned label is not in the price lookup file. Refer to the *Not-On-File Error* section in this chapter for more information about this feature. To change the Not-On-File Tone Volume, you must change the parameter by using the Good Read Tone programming worksheet.

Lockout Time

The Lockout Timer prevents the scanner from repeatedly reading the same bar code. After reading a bar code, it must be removed from the scan pattern and the time programmed in the Lockout Timer must elapse before the scanner can read the same bar code again. To change the Lockout Time, you must change the Lockout Time parameter in the Timers programming worksheet.

Active Time

The Active Time is the length of time that your scanner stays on after the last good read. After the active time elapses, the laser and motor turn off, extending the life of the scanner. To change the Active Time, you must change the Active Time parameter in the Timers programming worksheet.

How to Use PACESETTER Plus

PACESETTER Plus feature is an optional feature of the NCR 7880 Scanner that determines what is wrong with a bar code label, fixes it, and then transfers the information to the host workstation. In addition, the scanner keeps track of what is wrong with problem labels.

The PACESETTER Plus capability is contained in a pluggable EEPROM on the digital board. To determine if your scanner has PACESETTER Plus, scan the Mode 1 tag. If the scanner sounds any tone or tones, it has PACESETTER Plus. If it does not sound any tone, it does not have it.

There are three modes of PACESETTER Plus operation: Mode 1 (**Inquiry Mode**), Mode 2 (**Real-time Mode**), and Mode 3 (**Trailer Mode**). Mode 1 gives users access to the tally counters of PACESETTER Plus. The tallies keep track of a variety of good reads, with and without problems, as well as no reads. Users can determine the number of reads in each category and view a percentage that compares that tally to the total number of good reads.

Mode 2 permits users to scan individual labels and determine if there are any problems with the labels. This mode takes the scanner off-line so that data is not sent to the host workstation.

Mode 3 is the scanner's normal operating mode. Here, users have the option to enable or disable

PACESETTER Plus trailer data being sent to the host application.

Using Mode 1

In Mode 1, tally counters are kept for the following.

Tally Count Number	Tallies	Maximum Counts
C1	Good Reads	1,000,000
C2	No reads due to lack of a full label (bars missing, folded label, and so on)	65,535
C3	Good reads with very highly overprinted bars	65,535
C4	Good reads with very highly underprinted bars	65,535
C5	Missing margins	65,535

Use Mode 1 to access PACESETTER Plus tallies from the 7880 Scanner. These tallies tell you the exact number of each category of reads, from good reads with no problems to no reads. These tallies can help you chart productivity, as well as help you determine how label problems can affect your productivity.

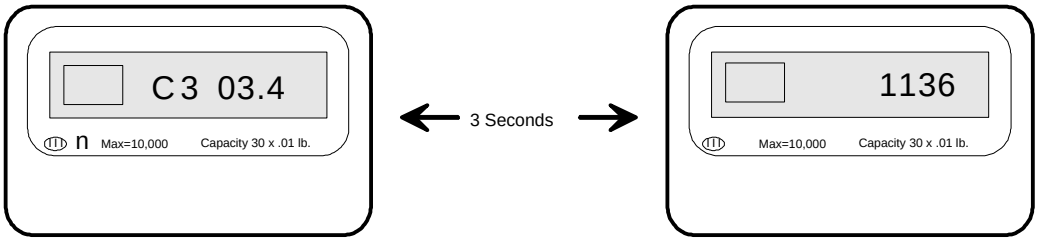
Entering Mode 1

You enter Mode 1 by scanning the **Mode 1** tag. This Mode is only available when the NCR 7825 Remote Display is used along with the 7880. The tally counts accessed from Mode 1 can be displayed on the optional NCR 7825 Remote Display. The display shows the tally count number, such as "C3," followed by the percentage of that count compared to the total

number of "Good Reads." The percentage is displayed to one decimal place. The Good Reads tally count, however, shows no percentage, since the number of good reads is always 100%.

Every three seconds, the display toggles the tally count and percentage to good reads with the total number of reads for that tally in decimal. For example, the display for "Good Reads with very highly overprinted bars" tally could be the display pictured in Figure 4-8.

Figure 4-8
3.4% and 1136 of Total Good Reads Have Highly Overprinted Bars



3.4% of all Good Reads have highly overprinted bars.

1136 labels have highly overprinted bars.

11756

The illustration shows the display for Mode 1 on a remote display unit. The first screen contains the tally number (C3) and percentage (3.4%) to good reads, while the second screen displays the actual tally count (1136).

Mode 1 Tallies

On each subsequent scan of the **Mode 1** tag, the tallies are displayed in the following order.

1 Good Reads (C1)
2 No reads due to lack of a full label (C2)
3 Good reads with very highly overprinted bars (C3)
4 Good reads with very highly underprinted bars (C4)
5 Good reads with missing margins (C5)

Another scan of the **Mode 1** tag causes the Good Reads tally (C1) to display again.

You can reset tally counts to zero by scanning the **Reset Tallies** tag.

Note: To exit Mode 1 and return to Normal Mode, Scan the **Reset** tag. To go from Mode 1 to Mode 2, scan the **Mode 2** tag.

Using Mode 2

Use Mode 2 to diagnose label problems individually. With Mode 2, you can scan a label and determine whether the label provides a good read, or if it has a defect that prevents the NCR 7880 from reading it. Mode 2 can help you identify the origin of label problems that reduce productivity.

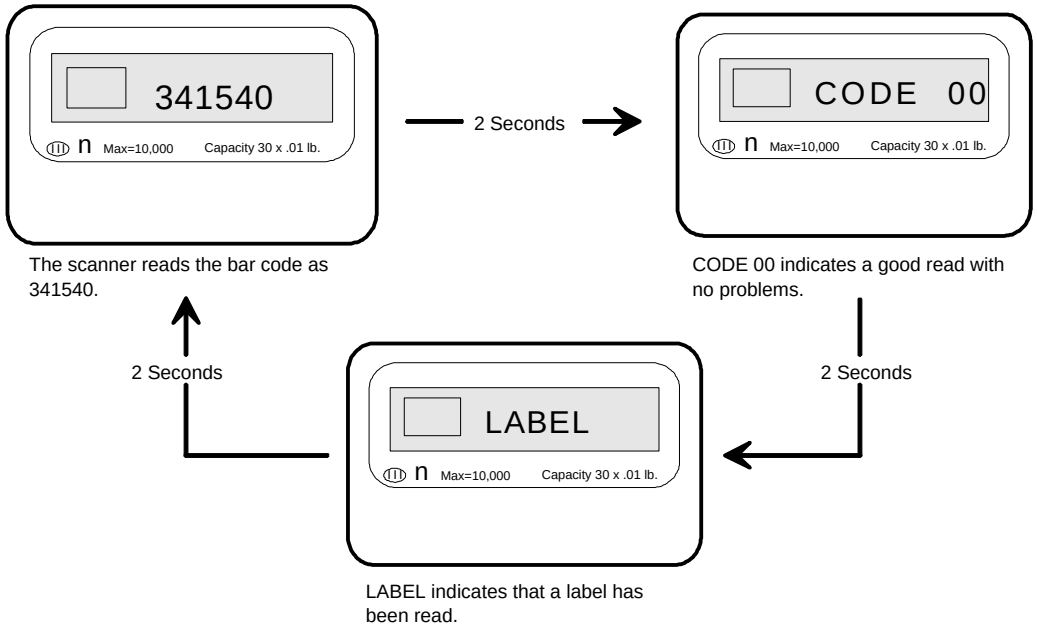
Entering Mode 2

You enter Mode 2 by scanning the **Mode 2** tag. The NCR 7880 is now taken off-line and the scale disabled so that the NCR 7825 remote display can show "ready 4 label." Every subsequent scan until the NCR 7880 is turned-off (or the **Reset** tag is scanned) causes the NCR 7880 to indicate the status of label readability. The NCR 7880 can recognize missing bars in labels, highly over/under printed labels, missing margins or a "no read" condition.

You can now scan a UPC/EAN label for analysis. The display shows "label" followed in one second by the display of the first half of the UPC/EAN label. If the label is a version "E", no second half is displayed since the "E" label is only six digits in length. Next, after a 2-second pause, the display shows "CODE xx" where "xx" is a code number to indicate readability status for the label.

Each of the screens in Figure 4-9 toggle to the next screen every two seconds. The first screen indicates the tag number that has been scanned (341540). Another screen is added to this sequence when a bar code cannot be displayed on one screen. This additional screen displays any bar code data that is not displayed on the first screen. The second screen displays the type of read made by the NCR 7880 (CODE 00). The following table gives the interpretation of each code. Finally, the last screen shows that a label has been read (LABEL).

Figure 4-9
A Good Bar Code Read in Mode 2



Note: A code "99" does not display the UPC/EAN label number prior to displaying "99," because the NCR 7880 is unable to decode the label.

Codes	Description
Code 00	Label was decoded without major problems.
Code 01	Label appears to be highly underprinted.
Code 02	Label appears to be highly overprinted.
Code 04	Label appears to have missing bars or margins.
Code 05	Label appears to be highly underprinted and to have missing bars or margins.
Code 06	Label appears to be highly overprinted and to have missing bars or margins.
Code 1x	Decoding was difficult; may be inconsistent printing.
Code 2x	Fragmented or folded label or inconsistent printing.
Code 3x	Decoding was difficult due to fragmented, folded or inconsistently printed label.
Code 99	Label cannot be decoded. If a particular label shows this code it should be analyzed more closely for out of specification conditions, even though the label may show a "code 00" when it does scan (printing may be inconsistent).

Note: If a label displays a code other than "Code 00," that label should be tested further, using a symbol verifier from the host application, to determine if it is out of specification.

Note: To exit Mode 2 and return to Normal Mode, scan the **Reset** tag. To go from Mode 2 to Mode 1, scan the **Mode 1** tag.

Routine Maintenance

You should keep the NCR 7880 in good operating condition by performing routine maintenance at least once a day.

Clean the scanner window in the Top Plate Assembly. If the scan window becomes excessively scratched, replace it. Do not let the scanner get wet.

Cleaning the 7880-1000/3000 Scanner Top Plate and Window

Keeping the glass Scan Window in the Top Plate clean helps keep the read rate exceptionally high. During normal operation of the scanner, the window gets dirty. If you permit dirt to accumulate, performance degrades to the point where the scanner cannot read bar codes.

When the Top Plate Scan Window is dirty, clean it with a soft cloth dampened with a non-abrasive liquid cleaning agent such as Windex, Glass Plus, or 409. Spray the cleaner on the cloth; do not spray directly on the scanner.

If it is necessary, when the glass window is replaced, clean the Plastic Top Cover Scan Window under the Top Plate with a soft cloth dampened with a non-abrasive liquid cleaning agent such as Windex. Glass Plus, or 409. Spray the cleaner on the cloth; do not spray directly on the Plastic Top Cover.

Cleaning the 7880 Scale Top Plate and Window

Clean the Top Plate, and the window inserted in the Top Plate, as follows:

1. Turn the NCR 7880 OFF by turning the circuit breaker switch OFF.
2. Remove the Top Plate and clean it using a soft cloth moistened with a common, non-abrasive, liquid window cleaner such as Windex, Glass Plus, or 409. Clean the window in the scale plate.
3. Clean the Plastic Top Cover that is under the Top Plate (and the window that is in it). DO NOT spray the cleaning agent directly onto the Plastic Top Cover or into the scale mechanism.
4. Wipe the surfaces dry with a soft, dry cloth. Verify that the calibration access cover is seated and not loose.
5. Remove any debris accumulated in the channels around the scale perimeter, on the scale base, the scanner, or calibration cover.
6. Replace the Top Plate.
7. Turn the NCR 7880 circuit breaker ON.

End of procedure. ■

Chapter 5

Troubleshooting Your NCR 7880 Scanner/Scale

Fault Identification

The NCR 7880 emits a series of tones and Status Indicator flashes to identify problems. It performs diagnostics that check various scanner functions at different times. The scanner performs self diagnosis during power on. Diagnostic checks are also made while the scanner is operating.

Scanner Fault Isolation

If a scanner malfunction is discovered during the power on diagnostic check, the unit issues a series of tones. The number of tones identifies the particular error. Momentarily, Status Indicator flashes Red and Green. The number of flashes also identifies the suspected problem module. Specific information about scanner fault isolation is provided in the *NCR 7880 Scanner/Scale Repair Guide.*

Some errors do not impede scanner operation; once the error is indicated, scanning can be resumed. If the failure impedes scanning, the error is sounded and the flashes repeated with a 3-second pause between each series of flashes. When queried, and if there is an application in the host terminal to interrogate diagnostic data from the scanner, the error counts that are kept in the scanner are sent to the terminal. If you cannot isolate the problem and correct it, call NCR for service.

Problem Correction

If the NCR 7880 does not work properly, you might be able to determine the problem and correct it. Use the following steps to help isolate the problem.

1. Verify that you are operating the NCR 7880 according to the procedures described in Chapter 4, *Operating Your NCR 7880 Scanner*.
2. Refer to *Common Problems*, in this chapter, to see if your specific problem is identified. If it is not identified, follow your normal repair procedures.

End of procedure. ■

Common Problems

This section identifies some common problems which may occur when using the NCR 7880. For each problem, information is provided about the possible cause and the corrective action which must be taken. If applicable, information is also provided if any tones are emitted or the Status Indicator is flashing when the problem occurs.

Scanner Problems

Problem	Status Indicator	Tone	Possible Cause	Corrective Action
Scanner does not operate.	Red off Green off	Off	No power to the unit	• Check the electrical outlet for proper power • Check the Power Supply Cable connections
Scanner does not operate.	Red flashing Green off	Off	Communications is IBM and scanner is off-line	• Verify that the IBM host terminal is turned on • Verify that IBM host terminal is recognizing the 7880 • Verify that the interface cable is properly connected • Verify Interface Switch setting
Scanner reads only two tags.	Red on Green off	Off	NCR 7880 not communicating with host terminal	• Check for expected Communication protocol • Check host terminal for proper operation • Check interface cable connections • Verify Interface Switch setting
Scanner reads no labels.	Red flashing rapidly	Off	Scanner has been disabled by host terminal	• Terminal should enable scanner later in the transaction
Scanner reads no labels.	Red on Green off	Off	Internal failure	• Remove power from the NCR 7880 and then supply power again • Have scanner repaired

Scale Problems

Scale error code 5 ---- displays on NCR 7825.	Scale drift	• Verify no item is on scale • Lift Top Plate and verify no objects under it • Zero scale by lifting Top Plate and replacing it • Power cycle the unit • Have scale calibrated
Scale error code 4 ---- displays on NCR 7825.	Possible scale error	• Zero scale by lifting Top Plate and replacing it and retry • Have Scale repaired
Scale error code 4 ---- displays on NCR 7825.	Slight vibration to scale when calibrating	• Re-calibrate the scale, being sure not to permit any scale vibration while the weights are on scale
Scale weight display blank	Interference around edge of Top Plate and checkstand, or foreign object under the Top Plate	• Lift Top Plate and verify no objects are under it • Zero the scale by lifting the Top Plate, then replacing it • Have scale calibrated

Interface Switch

The NCR 7880 includes circuitry for all available interface options. However, the active interface must match the Communication Protocol programming and the correct position of the Interface Switch.

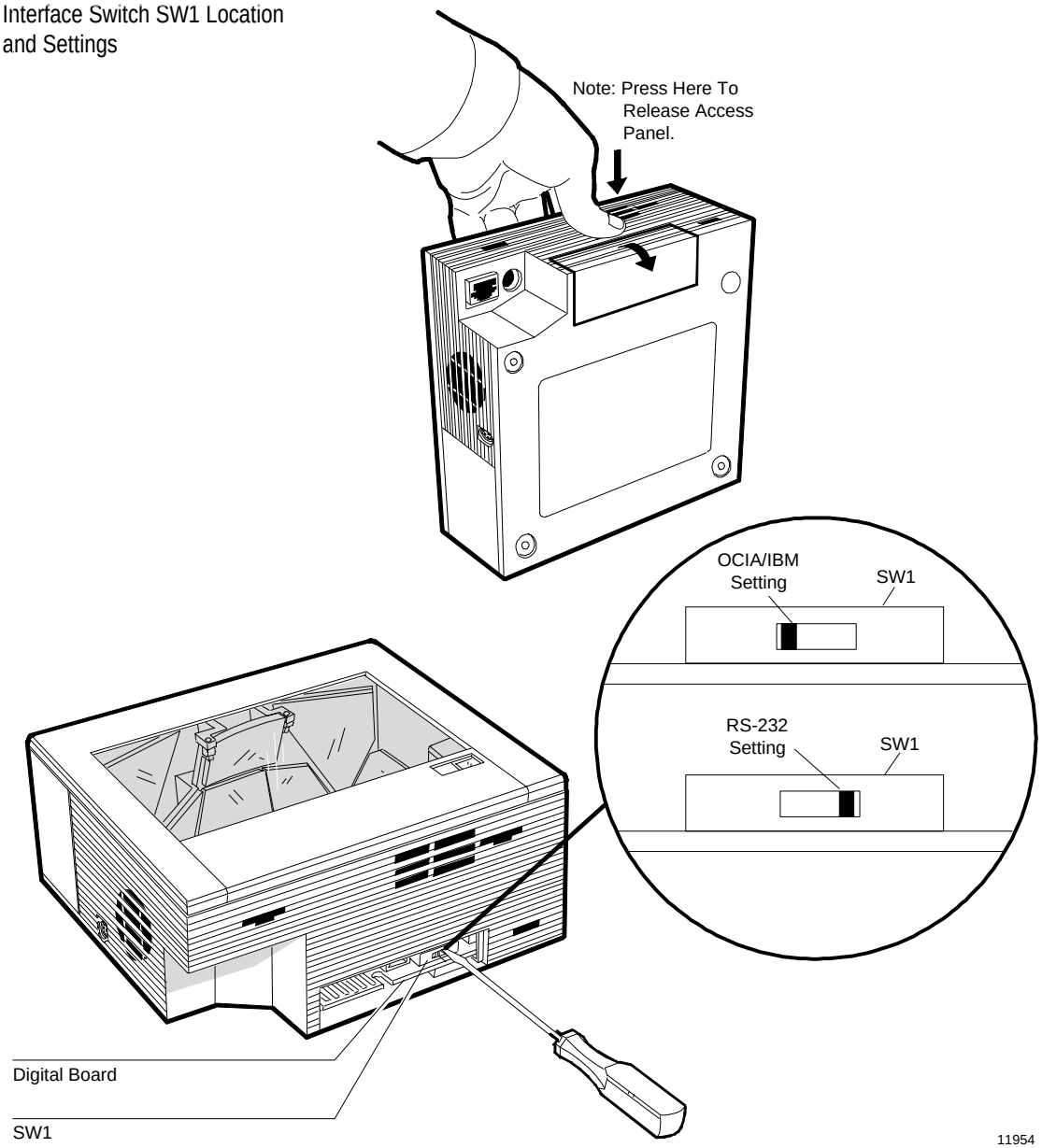
Switch Function

The interface switch SW1 selects the active interface by controlling the circuits to the Interface Connector J1. To change between OCIA or IBM and RS-232, you must change the setting of interface switch SW1. Switch SW1 is accessible from the access panel on the front of the NCR 7880. See Figure 5-1.

When interface switch SW1 is set to the left position, OCIA or IBM is selected; when SW1 is set to the right position, RS-232 interface is selected. The factory default switch setting for SW1 is to the left position OCIA or IBM.

SW1 is located on the Digital Board Assembly. Refer to the *NCR 7880 Scanner/Scale Repair Guide, Chapter 3 - Troubleshooting Procedures*, for Interface Connector J1 pin assignment selected by the interface switch.

Figure 5-1
Interface Switch SW1 Location and Settings



Setting Interface Switch SW1

1. Remove AC power from the NCR 7880.
2. Disconnect the DC power cable from the NCR 7880.
3. Disconnect the interface cable from the NCR 7880.
4. Access SW1 on the Digital Board Assembly by removing the access panel on the front of the scanner. Using your thumb press down firmly on the enclosure to release the access panel. See Figure 5-1.
5. To set the interface for OCIA or IBM slide the switch tab to the left side of SW1, using a small flat-blade screwdriver. This is the default setting
6. To set the interface for RS-232 slide the switch tab to the right side of SW1.
7. Replace access panel on the front of the scanner.
8. Replace power and interface cables.
9. Restore AC power to the NCR 7880.
10. Program the scanner with the Programming Tags.

End of procedure. ■

Mail-In Repair Information

Should your 7880 need repair, you have the option of mailing it to one of our repair depots for service. To use this option, NCR recommends that you have an extra 7880 to use, or have enough checkouts so that one can be closed while your 7880 is being repaired.

To use our Mail-In service, you need to call our Mail-In number: **800-551-7803**. You are given an RMA number that you need to put on the outside of the shipping carton and on all correspondence. You are also provided with the shipping address of a repair depot. When you call, have the following information available.

- Contact name
- Phone number
- Fax number
- Class of unit (7880)
- Serial number
- Failure description
- Return address

Appendix A

Programming Worksheets

Using the Programming Worksheets

The Programming Worksheets provide a convenient method of defining your 7880 program before loading it into the unit. Each worksheet relates to a specific programming mode. At the bottom of each Programming Worksheet is a section titled *Your Program*. It is recommended that you spend a few minutes and complete this section for each worksheet before you enter the program your 7880. It is also recommended that you save this information for future use should it be necessary to reenter this program.

Most of the programming options have defaults that are determined at the factory. A heavy box around an entry selection specifies it as the default value. Scanning the **Default** tag as the first tag after applying power to the 7880 sets the parameters to these values.

Entering the program into your 7880 is accomplished by scanning the proper sequence of programming tags. These are found in the *NCR 7800, 7870, 7875, 7880, and 7890 Programming Tags* book (BST0-2121-74). Following are the three major steps to programming your scanner.

1. Enter the Base Programming state by scanning the **Programming Mode** tag as the first tag after applying power to your 7880.
2. Select a Programming Worksheet and enter its parameter data by scanning the Hex tags identified in *Your Program* at the bottom of the Programming Worksheet. Repeat this for each worksheet.
3. Save your program by scanning the **Save and Reset** tag.

Caution Some host terminals can corrupt your program if they are running and are connected to the 7880 while you are entering a program. Either turn Off the host terminal or disconnect the interface cable from the host terminal before entering your program.

Note: In most instances the factory determined defaults are the correct parameter settings. Normally you only need to change a few of these parameters and do not need to enter all the programming worksheets. When programming your 7880, it is recommended that you first set all the parameters to default values, then make any necessary changes to the appropriate parameters.

1 0 COMMUNICATIONS PROTOCOL

Protocol

0	1	2	3	4	5
OCIA NCR Short (Datachecker)	OCIA NCR Long	OCIA Non NCR (Casio 4-Bit Parallel)	IBM 468x Port 4A (Slot Scanner)	IBM 468x Port 4B (HHBCR)	RS-232

6	7	A	B	C
OCIA Single Cable	OCIA NCR Dual Cable	OCIA Non NCR Dual Cable	IBM 1520 (BCR)	TEC 4-Bit Parallel

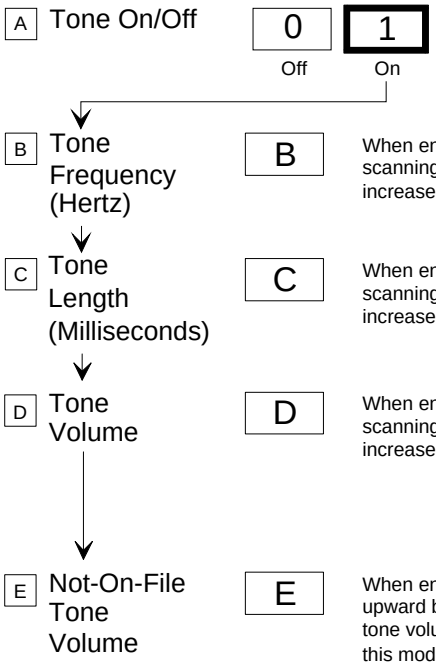
Your Program

Refer to
Program Entry
on Page A-2

1	0	
Communications Protocol		Protocol

14391

1 1 GOOD READ TONE



B — When entering Tone Frequency, the adjustment can be incremented upward by scanning the **Hex B** tag. Each time you scan the **Hex B** tag, the tone frequency increases one unit. Scan the **End** tag or a valid Hex tag to end this mode.

C — When entering Tone Length, the adjustment can be incremented upward by scanning the **Hex C** tag. Each time you scan the **Hex C** tag, the tone length increases one unit. Scan the **End** tag or a valid Hex tag to end this mode.

D — When entering Tone Volume, the adjustment can be incremented upward by scanning the **Hex D** tag. Each time you scan the **Hex D** tag, the tone volume increases one unit. Scan the **End** tag or a valid Hex tag to end this mode.

E — When entering Not-On-File Tone Volume, the adjustment can be incremented upward by scanning the **Hex E** tag. Each time you scan the **Hex E** tag, the tone volume increases one unit. Scan the **End** tag or a valid Hex tag to end this mode.

Your Program

Refer to *Program Entry* on Page A-2

1 1		B*	C*	D*	E*
Good Read Tone	Tone On/Off	Tone Frequency	Tone Length	Tone Volume	Not-On-File Tone Volume

* Scan Hex tag repeatedly for desired setting.

B053

1 2 TIMERS

A Lockout Time (Milliseconds)

0	1	**2**	3	4	5	6	7
450	600	750	900	1050	1200	1350	1500

B Restart Lockout Timer

0	1
Off	On

C Active Time (Minutes)

0	**1**	2	3
0	15	30	60

No Time-out (Always Active)

NOTE: NCR suggests that you do not set the Active Time parameter to 0. Leaving the laser light on all the time reduces its life expectancy.

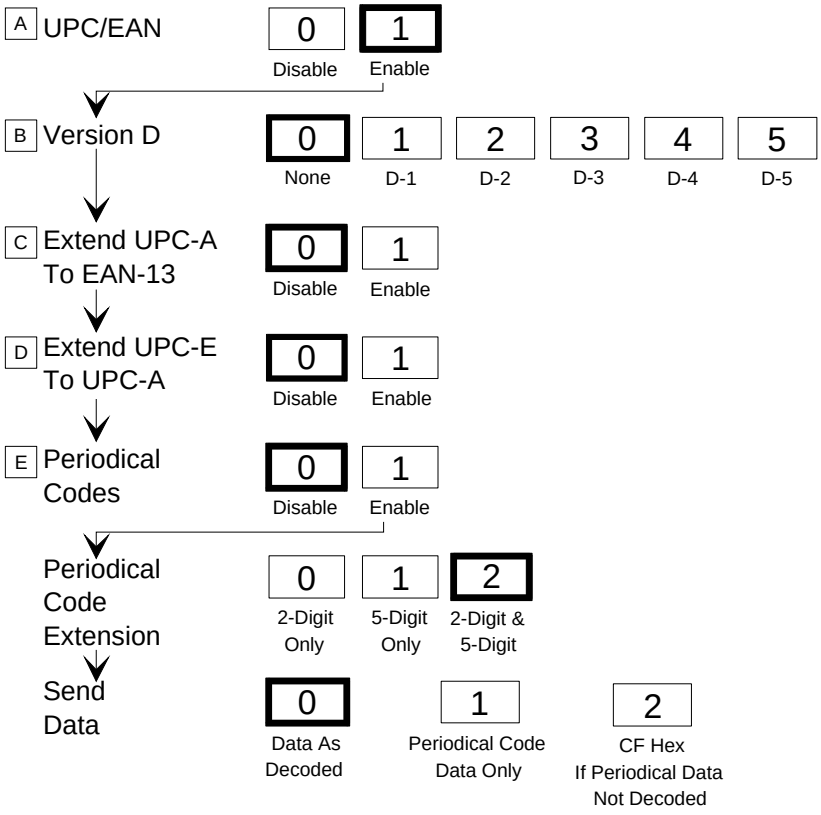
Your Program

Refer to *Program Entry* on Page A-2

	A	B	C
1 2			
Timers	Lockout Time	Restart Timer	Active Time

R0136

1 3 BAR CODES - 1



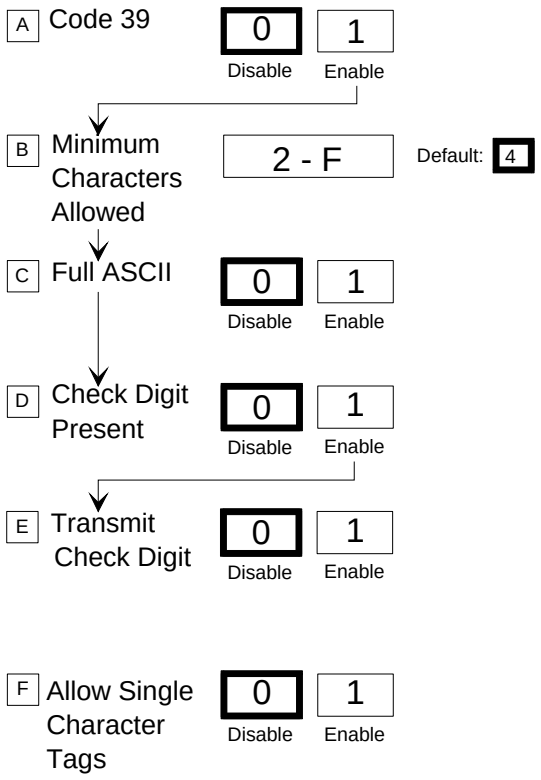
Your Program

Refer to *Program Entry* on Page A-2

		A	B	C	D	E		
1	3							
Bar Codes - 1		UPC/EAN	Version D	Extend UPC-A	Extend UPC-E	Periodical Codes	Periodical Code Extension	Send Data

14393

1 4 BAR CODES - 2



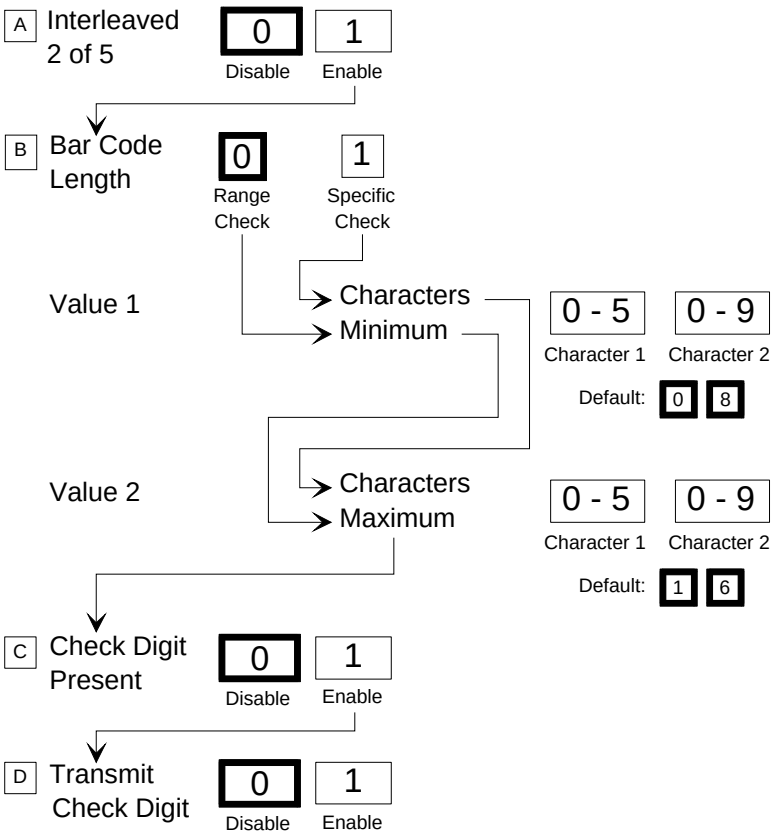
Your Program

Refer to *Program Entry* on Page A-2

		A	B	C	D	E	F
1	4						
Bar Codes - 2		Code 39	Minimum Characters Allowed	Full ASCII	Check Digit Present	Transmit Check Digit	Allow Single Character Tags

14394

1 5 BAR CODES - 3

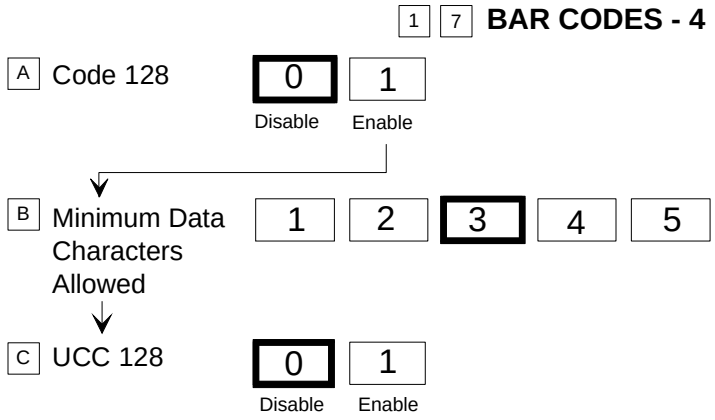


Your Program

Refer to *Program Entry* on Page A-2

		A	B			C	D
1	5						
Bar Codes - 3		Interleaved 2 of 5	Bar Code Length	Value 1	Value 2	Check Digit Present	Transmit Check Digit

B049

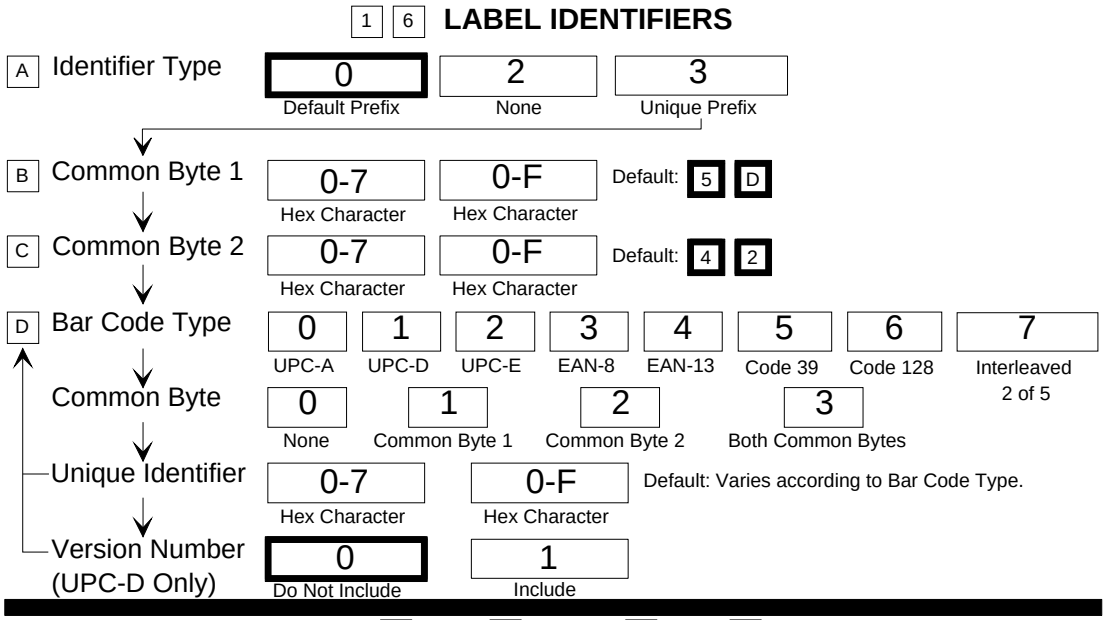


Your Program

Refer to
Program Entry
on Page A-2

		A	B	C
1	7			
Bar Codes - 4		Code 128	Minimum Data Characters Allowed	UCC 128

B050



Your Program

Refer to *Program Entry* on Page A-2

1	6	A	B		C		D				
Label Identifier		Identifier Type	Common Byte 1		Common Byte 2		Bar Code Type	Common Byte	Unique Identifier		Version Number

NOTE: Scan the **End** tag to end the Label Identifier Programming mode.

R0143

2 0 RS-232 PARAMETERS - 1

A Baud Rate

0	1	2	3	4	**5**	6
300	600	1200	2400	4800	9600	19200

B Parity

0	1	4
Odd	Even	None

NOTE: If the 7880 contains a scale, parity must be Odd or Even; **Odd** is used if **None** is selected.

C Stop Bits And Character Length

0	1	2	3
1 Stop Bit 7-Bit Character	1 Stop Bit 8-Bit Character	2 Stop Bits 7-Bit Character	2 Stop Bits 8-Bit Character

D Handshake

0	1	2	3	4	**5**
RTS Low CTS Ignored	RTS High CTS Ignored	Raise RTS Wait For CTS	Raise RTS Ignore CTS	RTS Low Wait For CTS	RTS High Wait For CTS

Your Program

Refer to *Program Entry* on Page A-2

2	0	A	B	C	D
RS-232 Parameters - 1		Baud Rate	Parity	Stop Bits And Character Length	Handshake

11809

2 1 RS-232 PARAMETERS - 2

A BCC Options

0	1
Disable	Enable

Default: 7880 Scanner Only - Disable
7880 Scanner/Scale - Enable

B Interface Control

0	1	2	3
None	ACK/NAK	XOn/XOff	ACK/NAK & XOn/XOff

C Check Digit

0	1	2	3
Disable UPC-A Disable EAN-8 Disable EAN-13 Disable UPC-E	Enable UPC-A Enable EAN-8 Enable EAN-13 Disable UPC-E	Disable UPC-A Disable EAN-8 Disable EAN-13 Enable UPC-E	Enable UPC-A Enable EAN-8 Enable EAN-13 Enable UPC-E

Note: Option 3 also enables UPC-E check digit for OCIA.

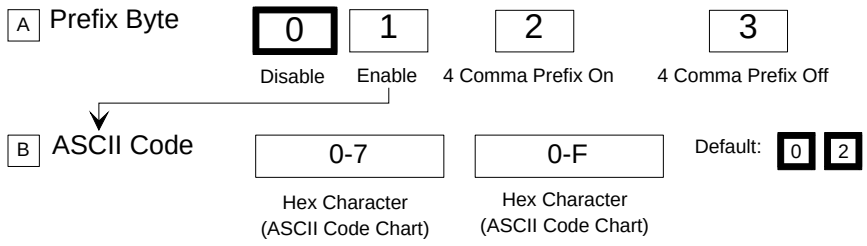
Your Program

Refer to
Program Entry
on Page A-2

		A	B	C
2	1			
RS-232 Parameters - 2		BCC Options	Interface Control	Check Digit

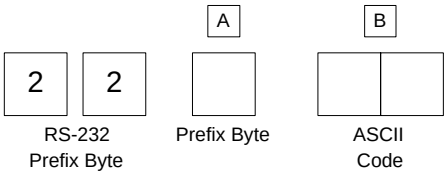
11810

2 2 RS-232 PREFIX BYTE



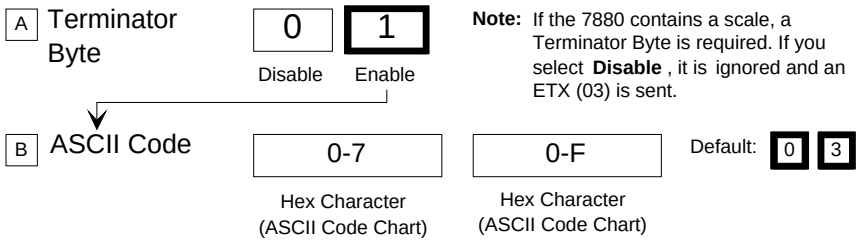
Your Program

Refer to
Program Entry
on Page A-2



R0035

2 3 RS-232 TERMINATOR BYTE



Your Program

Refer to *Program Entry* on Page A-2

2	3	A	B
RS-232 Terminator Byte		Terminator Byte	ASCII Code

11811

2 4 RS-232 COMMUNICATIONS OPTIONS

Message Delay	0 No Delay	**1** 10 ms Delay	2 50 ms Delay
Scanner or Scanner/Scale Format	4 Scanner Only	5 Scanner/Scale	
Normal or Eavesdrop Mode	**6** Normal Mode	7 Eavesdrop Mode	

Your Program

Refer to *Program Entry* on Page A-2

2 4 — RS-232 Communications Options

[ ] Message Delay

[ ] Scanner or Scanner/Scale Format

[ ] Normal or Eavesdrop Mode

12163

3 0 SCALE PARAMETERS

Model Number
- 3 — Scanner/Scale
- 4 — Scanner Only

IBM Address
- 5 — Address 6A
- 6 — Address 6B
- 7 — Address 6E

Speak Display Price
- B — Toggle On and Off

Your Program

Refer to *Program Entry* on Page A-2

3 0 — Scale Parameters

[ ] — Model Number

[ ] — IBM Address

D — Speak Display Price On/Off

11812

3 2 MISCELLANEOUS PARAMETERS

5-Second Weight Display Timer	1 Disable	2 Enable
IBM Tone Control (Good Read Tone Control)	3 Disable	4 Enable
OCIA Price Display	5 Disable	6 Enable
IBM Rexmit Control	7 3 Times	8 Forever
OCIA Blank Display in Price Mode	9 Disable	A Enable
Enable/Disable Voice Messages	D Toggle	Default: Voice enabled if present.
IBM Tag Data Format	E Hex	F ASCII

Your Program

Refer to *Program Entry* on Page A-2

3 2 Miscellaneous Parameters

- [ ] 5-Second Weight Display Timer
- [ ] IBM Tone Control
- [ ] OCIA Price Display
- [ ] IBM Rexmit Control
- [ ] OCIA Blank Display in Price Mode
- [ ] Toggle Enable/Disable of Voice Messages
- [ ] IBM Tag Data Format

11823

3 6 DUAL CABLE COMMUNICATIONS ADAPTER

A Scale Type

0	1	2	3	4
No Adapter - Exit Parameter	Avery	Weightronix	Tec Parallel	Casio Parallel

Your Program

Refer to *Program Entry* on Page A-2

3	6	A	
Dual Cable Communications Adapter			Scale Type

14396

ASCII Code Chart															
00	NULL	**10**	DLE	**20**	SP	**30**	0	**40**	@	**50**	P	**60**		**70**	p
01	SOH	**11**	DC1	**21**	!	**31**	1	**41**	A	**51**	Q	**61**	a	**71**	q
02	STX	**12**	DC2	**22**	"	**32**	2	**42**	B	**52**	R	**62**	b	**72**	r
03	ETX	**13**	DC3	**23**	#	**33**	3	**43**	C	**53**	S	**63**	c	**73**	s
04	EOT	**14**	DC4	**24**	$	**34**	4	**44**	D	**54**	T	**64**	d	**74**	t
05	ENQ	**15**	NAK	**25**	%	**35**	5	**45**	E	**55**	U	**65**	e	**75**	u
06	ACK	**16**	SYN	**26**	&	**36**	6	**46**	F	**56**	V	**66**	f	**76**	v
07	BEL	**17**	ETB	**27**	'	**37**	7	**47**	G	**57**	W	**67**	g	**77**	w
08	BS	**18**	CAN	**28**	(	**38**	8	**48**	H	**58**	X	**68**	h	**78**	x
09	HT	**19**	EM	**29**	)	**39**	9	**49**	I	**59**	Y	**69**	i	**79**	y
0A	LF	**1A**	SUB	**2A**	*	**3A**	:	**4A**	J	**5A**	Z	**6A**	j	**7A**	z
0B	VT	**1B**	ESC	**2B**	+	**3B**	;	**4B**	K	**5B**	[	**6B**	k	**7B**	{
0C	FF	**1C**	FS	**2C**	,	**3C**	<	**4C**	L	**5C**	\	**6C**	l	**7C**	|
0D	CR	**1D**	GS	**2D**	-	**3D**	=	**4D**	M	**5D**	]	**6D**	m	**7D**	}
0E	S0	**1E**	RS	**2E**	.	**3E**	>	**4E**	N	**5E**	^	**6E**	n	**7E**	
0F	S1	**1F**	US	**2F**	/	**3F**	?	**4F**	O	**5F**	_	**6F**	o	**7F**	DEL

R0040

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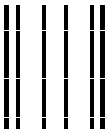

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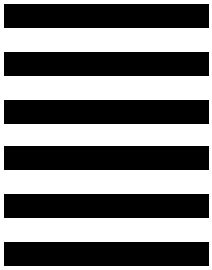

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