NCR 7872 Scanner/Scale

Installation and Owner Guide

497-0415291
Issue C

The product described in this book is a licensed product of NCR Corporation.

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It is the policy of NCR Corporation (NCR) to improve products as new technology, components, software, and firmware become available. NCR, therefore, 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. In some instances, photographs are of equipment prototypes. Therefore, before using this document, consult with your NCR representative or NCR office for information that is applicable and current.

To maintain the quality of our publications, we need your comments on the accuracy, clarity, organization, and value of this book.

Written by Todd A. Doane

Address correspondence to:

Manager, Information Products
NCR Corporation
2651 Satellite Blvd.
Duluth, GA 30096

Preface

Audience

This book is written for hardware installer/service personnel, system integrators, and field engineers.

References

- *NCR 7872 Scanner/Scale User Guide* (B005-0000-1179)
- *NCR 7872 Scanner/Scale Repair Guide* (B005-0000-1180)

Table of Contents

Revision Record

Issue	Date	Remarks
A	June 2000	First Issue
B	Aug 2000	Update to diagrams and worksheets
C	05/08/01	Updated checkstand cutout dimensions

Radio Frequency Interference Statements

Federal Communications Commission (FCC)

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of 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 interference in which case the user will be required to correct the interference at his own expense.

Information to User: This equipment must be installed and used in 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 modification of this equipment or the substitution or attachment of connecting cables and equipment other than those specified by NCR. The correction of interference caused by such unauthorized modification, substitution or attachment will be the responsibility of the user. The user is cautioned that changes or modifications not expressly approved by NCR may void the user's authority to operate the equipment.

Canadian Department of Communications

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 Communications.

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

International Radio Frequency Interference Statement

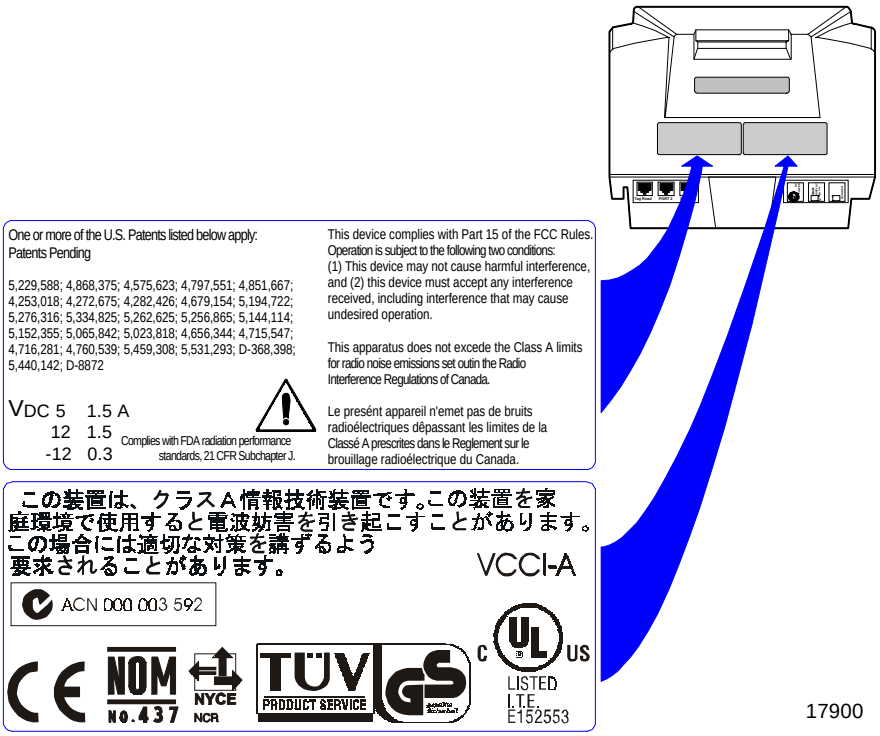
Warning: This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Voluntary Control Council For Interference (VCCI)

この装置は、情報処理装置等電波障害自主規制協議会（ＶＣＣＩ）の基準に基づくクラスＡ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。

Identification Labels

The Identification Labels are molded into the back of the Tower Cabinet. They provide necessary information about the unit: power requirements, the various agencies that have approved the unit, radio interference information, and applicable NCR patents.



Before Connecting This Device

Connection of EPOS / PC terminals to weighing or measuring devices requires governmental approval before the connected devices 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 Measure Coordinator, RSG-Atlanta, to authenticate that NCR Certificates of Conformance / Approval is not infringed.

NCR Office of Weights and Measures and Laser Safety
Dennis A. Krueger
2651 Satellite Boulevard
Duluth, GA 30096-5810
Phone: 770-623-7743
Fax: 770-623-7827
E-Mail: dennis.krueger@ncr.com
Web Site: http: / / rsg.ncr.com / wm / approvals.doc

CE Mark Applicability

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

90 / 384 / EEC	Non-Automatic Weighing Instrument
89 / 336 / EEC	EMC
73 / 23 / EEC	Low Voltage

Scale Regulatory

Notification of country, state, and local regulatory agencies of weighing device installation is required. Failure to comply can result in criminal prosecution and jeopardize the ability to conduct normal business. The NCR 7872 Scanner / Scale has been certified in many countries. Contact the NCR office of Weights and Measures and Laser Safety for specific country approvals.

NCR Office of Weights and Measures and Laser Safety
Dennis A. Krueger
2651 Satellite Boulevard
Duluth, GA 30096-5810
Phone: 770-623-7743
Fax: 770-623-7827
E-Mail: dennis.krueger@ncr.com
Web Site: http: / / rsg.ncr.com / wm / approvals.doc

Declaration of Conformity

We, **NCR Corporation**, Retail Solutions Group Atlanta, 2651 Satellite Boulevard, Duluth, Georgia, 30096-5810, USA, declare under our sole responsibility that the product **NCR Class 7872 Bar Code Scanner/Scale** to which this declaration relates is in conformity with the following standard or other normative document following the provisions of the noted Directives.

EU Directive	Harmonized Standard(s)
89/336/EEC (EMC)	EN 55022: 1994 + A1 (1995) + A2 (1997) EN 50082-1, Part 1 (1992) IEC 801-2: 1984, Severity Level 3 IEC 801-3: 1984, Severity Level 2 IEC 801-4: 1988. Severity Level 2
72/23/EEC (Low Voltage)	EN 60950: 1992 A1, A2, A3, A4, and A11 EN 60825-1
90/384/EEC (Non-automatic weighing instruments Note: Scale is optional. This directive applies only to units with a scale.	EN 45501: 1994

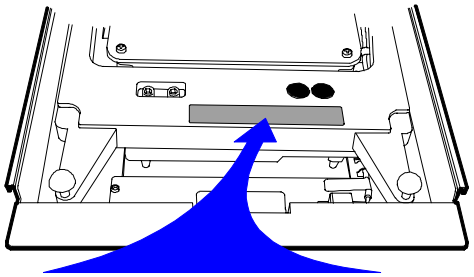
Director of Quality Assurance
NCR Corporation
RSG – Atlanta
2651 Satellite Boulevard
Duluth, GA 30096-5810
U.S.A

European Contact
EU Patent Attorney
NCR Limited
206 Marylebone Road
London NW1 6LY
England

Scale Identification Label

The Scale Identification Label is located under the top plate on the H-bar as shown in the following diagram.. This information is provided to help understand the information on the label.

E = Scale Interval
D = Scale Division
Max = Maximum weight permitted on scale
Min = Minimum weight that should be measured on scale
Nmax3000 = Maximum scale divisions



NCR CORPORATION (III)		
Max 13.995 Kg	Min 0.1 Kg	Model
e = d = 0.005 Kg	n_{max} 3000	Approval
Lim 19.990 Kg	+10° C / +40° C	Serial No

NCR CORPORATION (III)		
Max 9.995 Kg	Min 0.1 Kg	Model
e = d = 0.005 Kg	n_{max} 3000	Approval
Lim 19.990 Kg	+10° C / +40° C	Serial No

NCR CORPORATION (III)		
Max 30.00 lb	Min 0.2 lb	Model
e = d = 0.01 lb	n_{max} 3000	Approval
Lim 44.00 lb	+10° C / +40° C	Serial No

17705

Safety Extra Low Voltage

This device should only be powered by a power supply source complying with SELV and LPS requirements per UL1950 (or EN60950), suitable for the country of installation. The power source must be certified by the appropriate safety agency for the country of installation.

Caution: The socket outlet should be installed near the equipment and should be easily accessible.

Le matériel doit être alimenté par une source de courant avec SELV et LPS suivant le code UL1950 et EN60950. Le source d'alimentation doit être approuvée par une agence de normalisation appropriée et acceptable dans le pays où le matériel doit être installé.

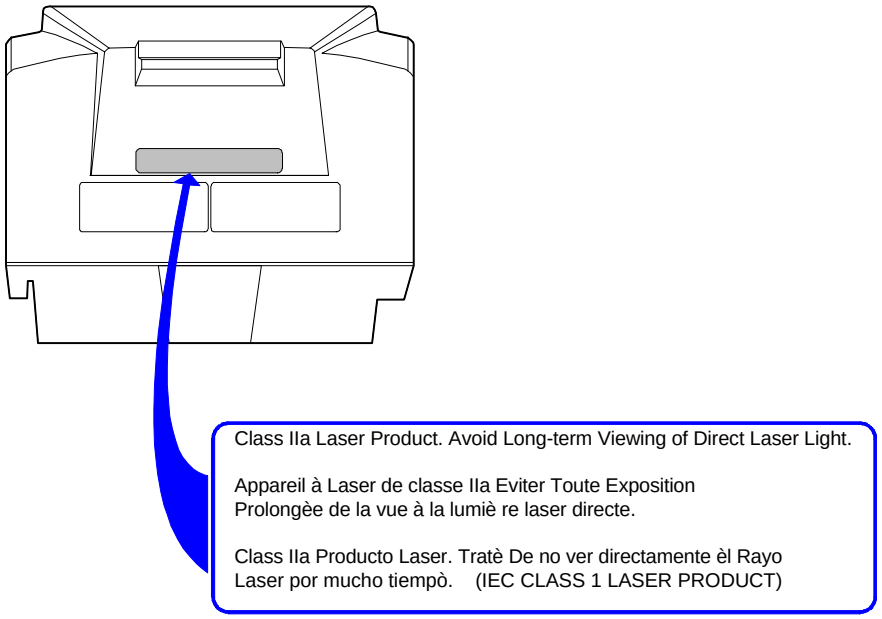
Caution: La prise électrique doit être installée près du matériel et doit être accessible falilerient.

Laser Safety

The NCR 7872 Scanner is not intended for long-term viewing of the direct laser light. However, the unit is safe if used as it was intended. See below for additional information.

Laser Safety Label

The NCR 7872 Scanner/Scale comes from the factory with the Laser Safety label attached. The following figure shows the Laser Safety label and its location.



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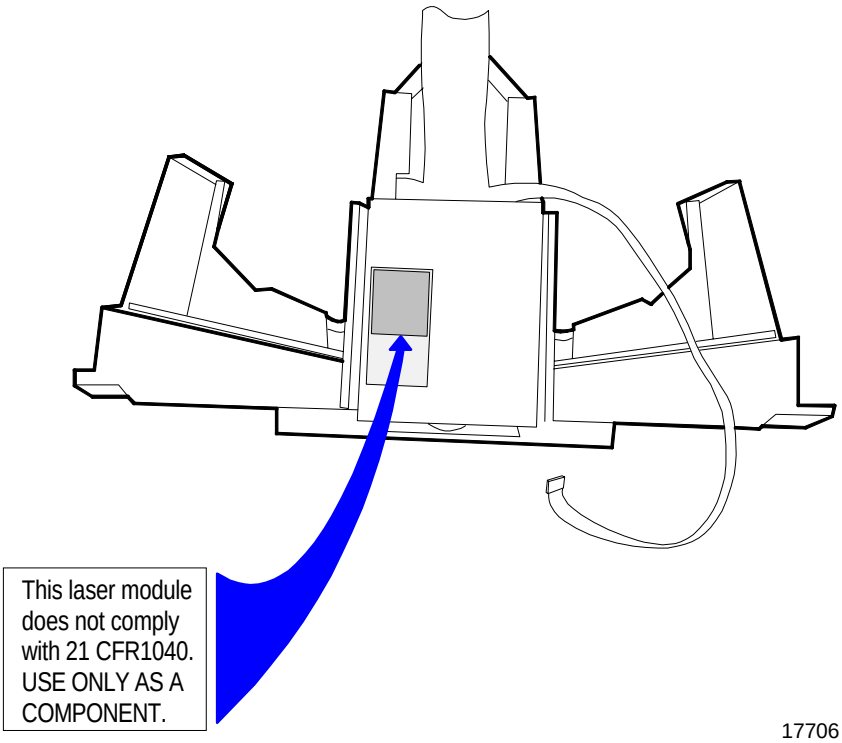
7872 xxxx Laser Module Label Location



Laser Power

The NCR 7872 Scanner meets the following laser power requirements:

- Class 1 EN60825-1: 1994 (Europäische Norm)
- Class 1 IEC 825-1: 1993 (International Electrotechnical Commission)
- Class IIA CDRH (Center for Devices and Radiological Health) FDA, USA

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

7872-All Models

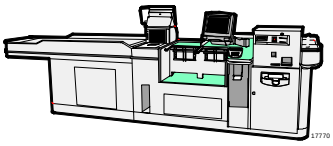
Maximum Radiant Power	0.96 Milliwatts
Accessible Emission Limit (CDRH Calculation)	1.50 Milliwatts
Accessible Emission Limit (EN60825-1 / IEC 825-1 Calculation)	0.99 Milliwatts

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

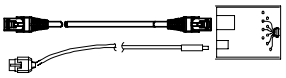
Chapter 1: Installation

Installing the NCR 7872 Scanner / Scale consists of five main steps. Depending on the installation, other information is sometimes needed. It is recommended that you follow the installation steps in the following diagram.

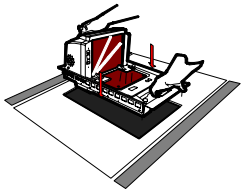
1 Preparation
1-2



2 Connect
1-9



3 Install
1-13



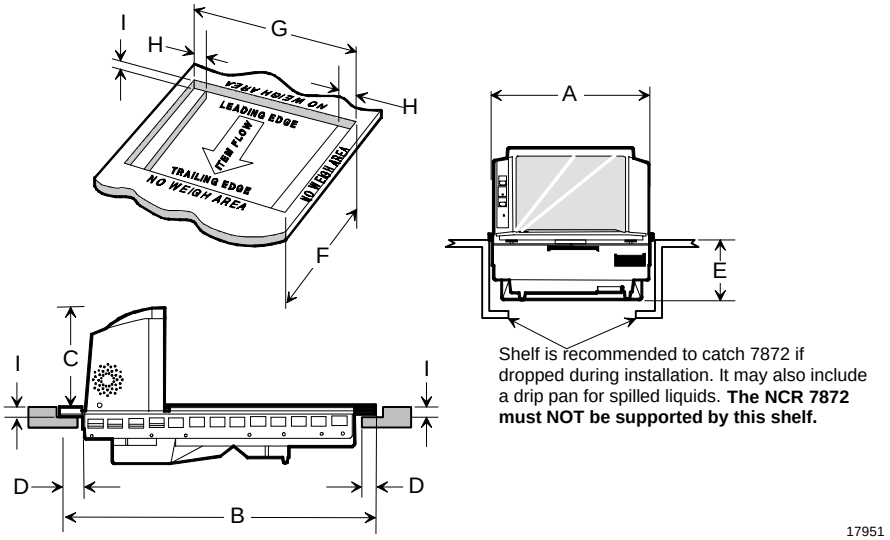
4 Calibrate
1-16

5 Verify
1-24

18265

Step 1 Verify Checkstand Preparation

Checkstand Cutout: NCR 7872 - 1000/2000



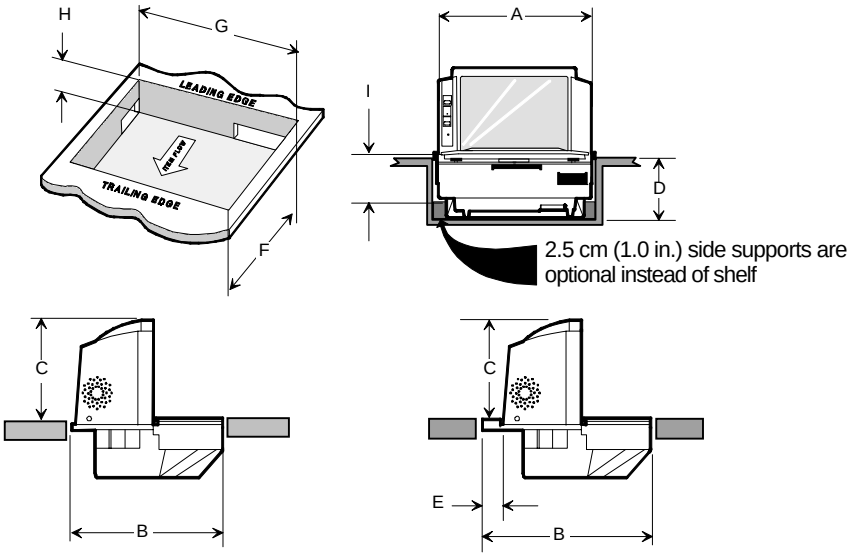
Scanner Unit Actual Dimensions

MODEL	A (Width)	B(Length)	C (Tower Height)	D (Extender)	E (Lower Height)
1000	29.21 cm 11 1/2 in.	50.80 cm 20 in.	16.15 cm 6 3/8 in.	3.48 cm 1 3/8 in.	8.89 cm 3 1/2 in.
2000	30.33 cm 11 15/16 in.	50.80 cm 20 in.	16.15 cm 6 3/8 in.	3.48 cm 1 3/8 in.	8.89 cm 3 1/2 in.

Cutout Dimensions

MODEL	F (Width)	G(Length)	H (Width of End Support)	I (Depth)
1000	29.36 cm 11 9/16 in.	50.95 cm 20 1/16 in.	3.30 cm 1 5/16 in.	0.94 cm 3/8 in.
2000	30.48 cm 12 in.	50.95 cm 20 1/16 in.	3.30 cm 1 5/16 in.	1.27 cm 1/2 in.

Checkstand Cutout: NCR 7872 - 0300



Standard Size

NCR 7870-3000 & PSC 381 Size

Note: The NCR 7872-0300 is supported by side supports or a shelf. Do not support it by the Rear Extender.

17952

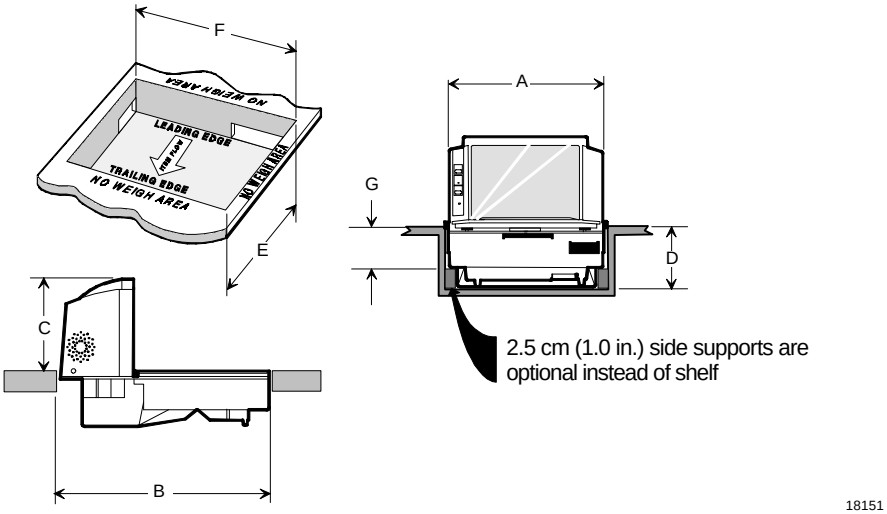
Scanner Unit Actual Dimensions

MODEL	A (Width)	B(Length)	C (Tower Height	D (Depth)	E (Rear Spacer)
0300	29.21 cm	29.46 cm	16.15 cm	8.89 cm	N / A
	11 1 / 2 in.	11 5 / 8 in.	6 3 / 8 in.	3 1 / 2 in.	N / A
Fits 7870-3000	29.21 cm	34.36 cm	16.15 cm	12.70 cm	4.90 cm
	11 1 / 2 in.	13 1 / 2 in.	6 3 / 8 in.	5 in.	1 15 / 16 in.
Fits PSC 381	29.21 cm	35.25 cm	16.15 cm	10.16 cm	5.79 cm
	11 1 / 2 in.	13 7 / 8 in.	6 3 / 8 in.	4 in.	2 ½ in.

Cutout Dimensions

MODEL	F (Width)	G(Length)	H (Depth to Shelf)	I (Depth to Side Support)
0300	29.36 cm	29.62 cm	8.89 cm	5.72 cm
	11 9 / 16 in.	11 5 / 8 in.	3 1 / 2 in.	2 1 / 4 in
Fits 7870-3000	29.36 cm	34.52 cm	12.70 cm	5.72 cm
	11 9 / 16 in.	13 5 / 8 in.	5 in.	2 1 / 4 in.
Fits PSC 381	29.36 cm	35.41 cm	10.16 cm	5.72 cm
	11 9 / 16	13 15 / 16 in.	4 in.	2 1 / 4 in.

Checkstand Cutout: NCR 7872 - 5000/5100/6000



Scanner Unit Actual Dimensions

MODEL	A (Width)	B(Length)	C (Tower Height)	E (Depth to Shelf)
5000 / 5100 / 6000	29.21 cm 11 1 / 2 in.	39.88 cm 15 11 / 16 in.	16.15 cm 6 3 / 8 in.	8.89 cm 3 1 / 2 in.

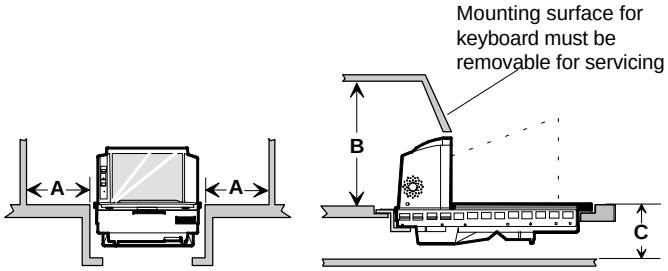
Cutout Dimensions

MODEL	F (Width)	G(Length)	H (Depth to Optional Side Support)	E (Depth to Shelf)
5000 / 5100 / 6000	29.36 cm 11 9 / 16 in.	40.03 cm 15 3 / 4 in.	5.72 cm 2 1 / 4 in.	8.89 cm 3 1 / 2 in.

Drip Pan Installation

Note: When the NCR 7872 Scanner / Scale is used in a sit down environment, install a drip pan below the scanner / scale to divert any spilled liquids or debris away from the operator.

Service Clearance

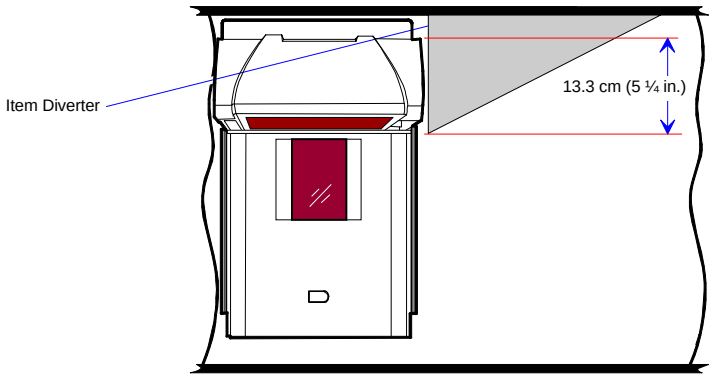


A = 20.3 cm (8.0 in.) if checkstand structure is not removable for servicing.
2.5 cm (1.0 in.) if checkstand structure is removable for servicing.
B = 35.6 cm (14.0 in.) f checkstand structure is not removable for servicing.
(7.0 in.) if checkstand structure is removable for servicing.
C = 9.5 cm (3.8 in.) clearance to closest checkstand panel.

18152

Item Diverter

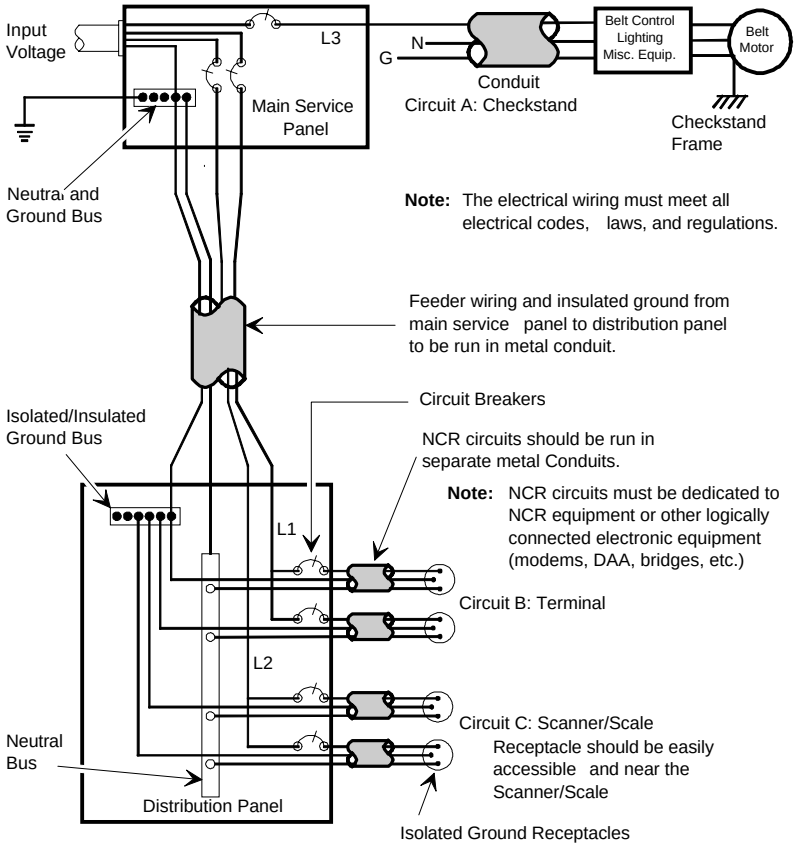
An installed item diverter must extend ¼ inch beyond the scan window to allow items to clear the tower assembly and move easily in front of the scan windows. The tower is 13.3 cm wide, however the item diverter may need to be wider depending on the model. See the sections *Checkstand Cutout* for more dimensions.



Ventilation Requirements

The NCR 7872 Scanner/Scale is designed to operate without an exhaust fan in the checkstand; however, there must be adequate convection airflow. The ambient temperature inside the checkstand cannot be higher than 40° C (104° F). Also, the ambient temperature inside the checkstand cannot be higher 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 7872 Scanner/Scale.

Electrical Wiring to the Checkstand



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.

R0121

The NCR 7872 outlet in the checkstand must be connected to a circuit breaker switch. This switch must be located close to the operator and is used as the On / Off switch for the NCR 7872.

Hole Requirements for 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 ensure that there are no sharp edges to cut the cable. The following table gives the minimum hole size for each of the NCR 7872 cables.

Cable	Cable Length	Minimum Hole Size
Power Cord – Outlet to Power Supply	3.05 meters (10 feet)	3.18 centimeters (3/4 inch)
Power Cord – Power Supply to NCR 7872	1.22 meters (4 feet)	1.52 centimeters (1/2 inch)
Interface Cable	8.0 meters (26.24 feet)	1.90 centimeters (3/4 inch)
	4.0 meters (12.12 feet)	1.90 centimeters (3/4 inch)
Remote Display Cable	8.0 meters (26.24 feet)	1.90 centimeters (3/4 inch)
	4.0 meters (12.12 feet)	1.90 centimeters (3/4 inch)

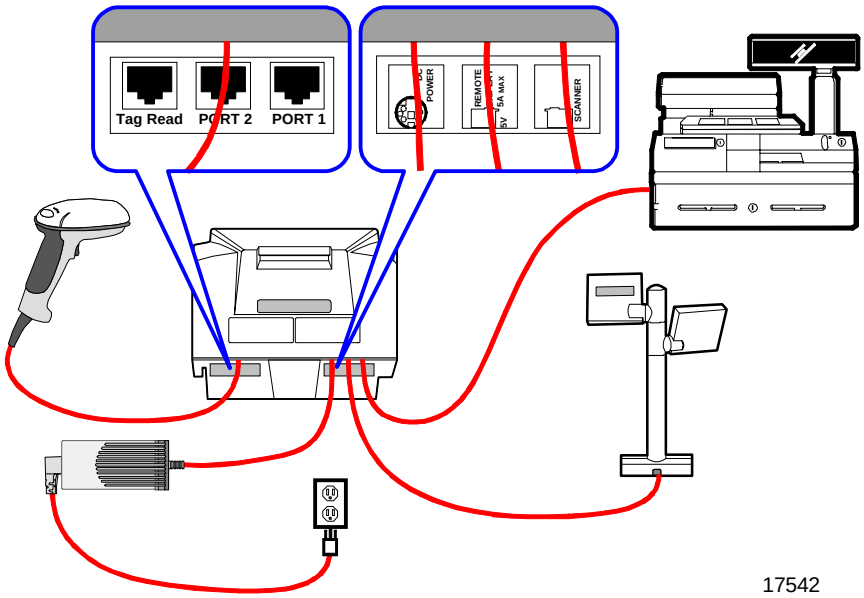
Step 2 Connect the Cables

1. Verify that the NCR 7872 power receptacle switch is off. Plug the power cord into the NCR 7872 power receptacle. Pass the power cable from the power supply through the checkstand opening.
2. Connect the communications interface cables to the host terminal. Refer to the terminal documentation for instructions on connecting the interface cables.

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

3. Pass the interface cable through the checkstand opening (See previous section regarding Hole Requirements for Cables).
4. If you are installing an NCR 7825 Remote Display, pass the cable from the display, through the checkstand, and through the checkstand opening where the NCR 7872 is going.
5. If you are installing an RS-232 peripheral device, pass its interface cable through the checkstand opening as needed. The port you use on the NCR 7872 must be identified in the NCR 7872 programming. Some peripherals are limited to which port they can use.

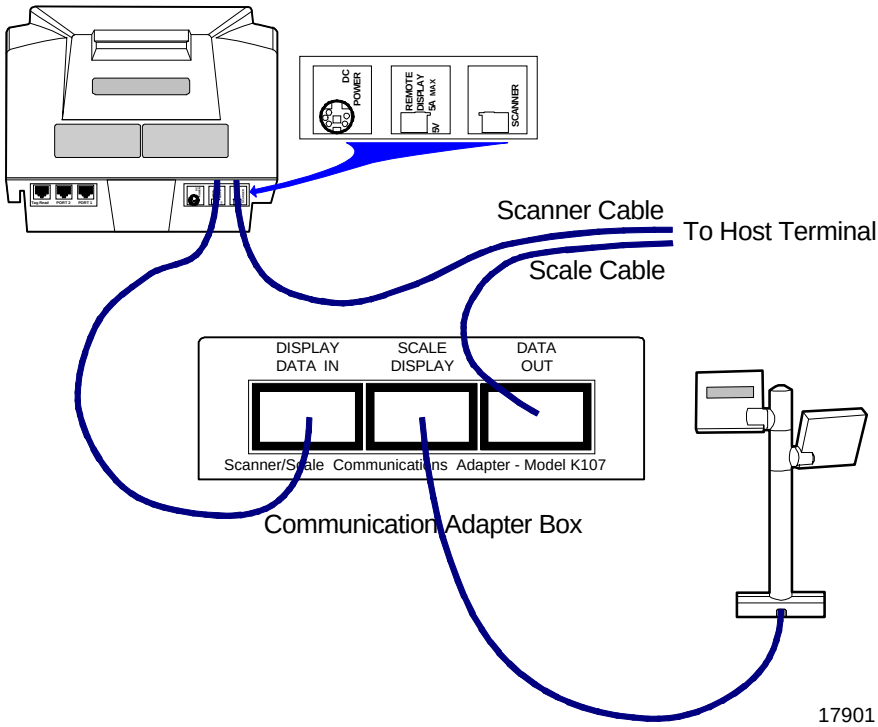
6. Connect all cables to the NCR 7872 according to the following illustration.



Dual Cable Installations

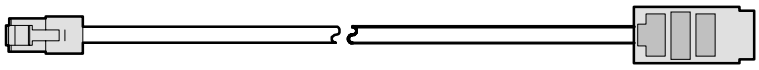
When the NCR 7872 is installed in a dual-cable system, a Communication Adapter box must be used. Use the following procedure to install this box.

1. Cut the included Velcro tape into two strips and attach it to the Communication Adapter box.
2. The Communication Adapter box must be located close to the NCR 7872. The Display Data Cable (497-0404334) is 1 meter (39.4 inches) long. Attach the Communication Adapter box in a suitable position where it remains dry if liquid is spilled on the checkstand.
3. Connect the cables as shown.



RS-232 Peripheral Cables

The cable on some RS-232 hand-held peripheral devices is not long enough to connect to the NCR 7872 (under the checkstand) and still permit easy use of the device. In these cases, NCR recommends that you install an extension cable. You can obtain one from NCR (Corporate ID Number 1416-C313-0040) or you can make your own. If you make your own, it should be approximately 39 inches (1 meter) long with 8-pin phone type connectors on each end.



J1	Wire Number	P1
1	1	1
2	2	2
3	3	3
4	4	4
5	5	5
6	6	6
7	7	7
8	8	8

16046

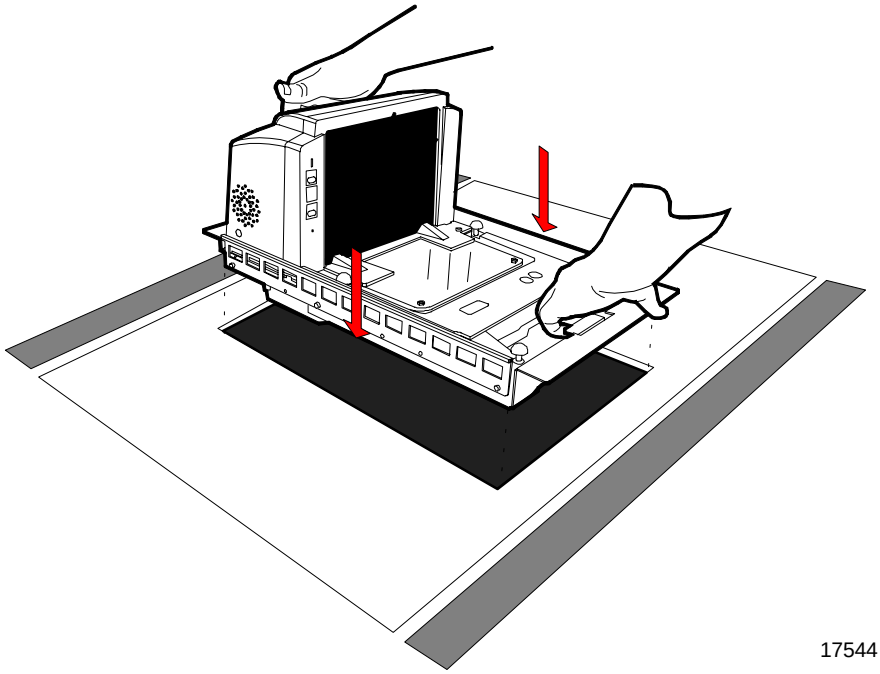
Power Supply Location

Locate the Power Supply in a convenient place inside the checkstand. It must be close enough for the Power Cable to reach the NCR 7872. However, do not place the Power Supply where spilled liquids can run down onto it.

Note: It is recommended that a drip pan be installed below the NCR 7872 Scanner/Scale to collect any spilled liquids.

Step 3 Install NCR 7872 in Checkstand

1. Verify the top of the NCR 7872 supports are set to the initial distance from the top of the checkstand.
2. Grasp the front and back of the unit, as shown below, and slowly lower it into the checkstand cutout. For proper operation, the NCR 7872 must be level. It should have support within five centimeters (two inches) of its corners so that it does not rock.



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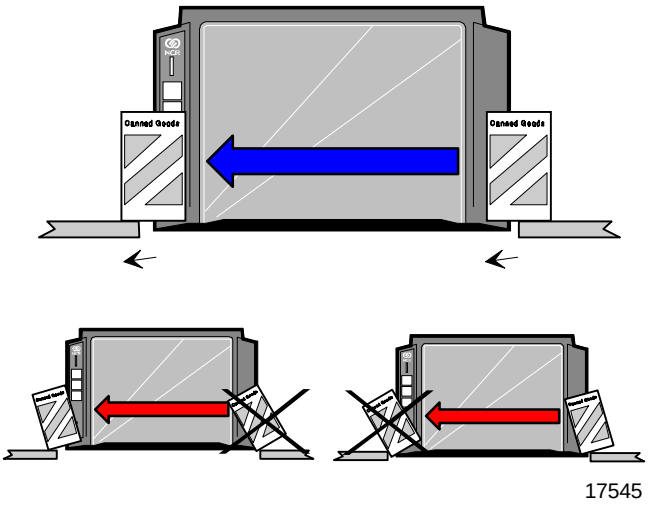
Note: On units that do not have a handle on the front to grasp, pick up the unit by firmly grasping the tower with both hands by lowering the unit into the cutout, placing it either on its side supports or on a shelf below.

3. Install the Top Plate on the four supports (rubber posts). The leading edge of the Top Plate must be flush or up to 0.15 cm (0.06 in.) below the top of the checkstand. The trailing edge of the Top Plate must be flush or up to 0.15 cm (0.06 in.) above the top of the checkstand.
4. Verify the final alignment of the Top Plate with the top of the checkstand. An item should easily slide from the checkstand, across the NCR 7872 Top Plate, and back onto the checkstand. The following illustration shows proper alignment.



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Note: It is critical that the NCR 7872 does not rock on its supports to ensure scale accuracy. Make sure that all supports are securely fastened and that the NCR 7872 is sitting on all supports.

Communications Protocol

Before the NCR 7872 Scanner / Scale was shipped from the factory, the communications protocol strapping was set to your store specifications.

See the section *Setting the Communications Protocol* located in **Chapter 3** of this book for further information.

Step 4 Calibrate the Scale

Note: You MUST calibrate the scale when you install a NCR 7872 Scanner/Scale. To be in compliance with governmental weights and measures regulations, you must be certified or registered with your government to calibrate and place a weighing instrument into service.

Note: Calibration information is NOT sent to the host terminal. If your NCR 7872 does not have voice enabled or does not have a remote display, you must use a Field Service Calibration Display.

Caution: Be sure the Interface Cable between the NCR 7872 and the host terminal is **disconnected** during scale calibration. Some host terminals can cause interference that can invalidate the scale calibration.

You can calibrate the scale after power has been supplied for 30 minutes if the ambient temperature has been 20 C (68 F) for at least 24 hours. If this condition is not met, then the scale must be on for at least 6 hours before you can calibrate it. Also, you must use a certified weight set to calibrate and certify the scale.

The EEPROM on the scale board maintains an audit trail of scale calibration and programming activity. The audit trail records the number of times the scale has been calibrated. You can display the audit trail count on a Remote 7825 or Field Service Calibration Display by pressing and holding the Scale Zero Button on the Operator Display Panel. The display alternates between Cal xxx and Par xxx.

Exercise the Scale

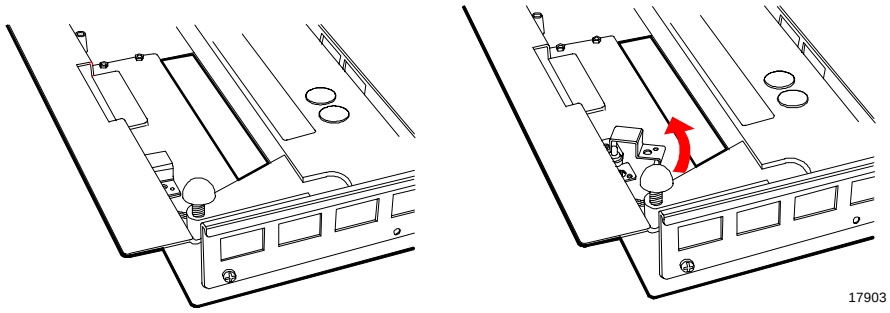
You must exercise the scale before performing a calibration. Add and remove weight to your scale in the order given in the following chart. This is a building procedure in which you start with no weight (0) and sequentially add and remove weight to obtain the values shown in the chart. Go through this procedure four times.

Weight Feature	Total Weight on Top Plate						
9.995 kg	0.0 kg	2.5 kg	5.0 kg	10. 0 kg	5.0 kg	2.5 kg	0.0 kg
13.995 kg	0.0 kg	2.5 kg	5.0 kg	15.0 kg	5.0 kg	2.5 kg	0.0 kg
30.0 lb.	0.0 lb.	5.0 lb.	15.0 lb.	30.0 lb.	15.0 lb.	5.0 lb.	0.0 lb.

Access the Calibration Switch

The Calibration Switch is located below the Top Plate.

1. Remove the Top Plate to gain access to the Calibration Switch Cover.
2. Remove the screw that secures the Calibration Switch Cover.
3. Also remove the seal if one is present.
4. Rotate the Calibration Switch Cover to gain access to the Calibration Switch.



Calibrate the Scale

The scale firmware controls calibration. It waits for you to respond to the prompt before going to the next step. When you have placed the weight on the Top Plate and pressed the Scale Zero button, the firmware sounds a single tone and changes the prompt for the next weight. You can end the procedure before you have completed the calibration function by turning the unit off. However, if you do this, you must still calibrate the scale before placing it into service

Note: The pound and kilogram weights used for calibration are not equivalent values. They are the actual weights the firmware needs to perform the calibration.

1. Install the Top Plate.
2. Apply power to the NCR 7872.
3. Press and hold the Scale Zero button to display the Cal and Par values. Record these values.
4. Raise the front edge of the Top Plate just enough to access the Calibration Switch. Press the Calibration Switch, then lower the front of the Top Plate into position. The display should indicate no weight on the scale: **Ready C 0.00 lb** (0.000 kg).
5. Change the weight on the Top Plate in the sequence shown in the following chart when directed to do so by the display or voice messages.

Display	Add Weight	Remove Weight
Ready C-2.5 kg (05 lb.)	2.50 kg (5.00 lb.)	
Ready C-05 kg (15 lb.)	2.50 kg (10.00 lb.)	
Ready C-10 kg (30 lb.)	5.00 kg (15.00 lb.)	
Ready C-00 kg (00 lb.)		10.00 kg (30.00 lb.)
Ready 0.000 kg (0.00 lb.)		

Verify the Calibration

The scale accuracy test meets government requirements of testing the accuracy of the scale after performing a scale calibration. It contains a series of four tests that must be run in the continuous sequence given.

Increasing Load Test

This test checks the scale's accuracy when incrementally adding weight to the center of the top plate. Use weights that correspond to the NCR 7872 weight feature.

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

Note: Do NOT remove any weight from the Top Plate.

Over-Capacity Test

This 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 NCR 7872 weight feature. The display shows a series of dashes to indicate an over-capacity condition.

Step	Weight Feature	Add Weight	Remove Weight	Display Result
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 ± 0.01 lb.

Note: Do NOT remove any weight from the Top Plate.

Decreasing Load Test

This test checks the scale's accuracy when incrementally removing weight from the top plate. Use weights that correspond to the NCR 7872 weight feature.

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

Step	Weight Feature	Add Weight	Remove Weight	Display Result
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.

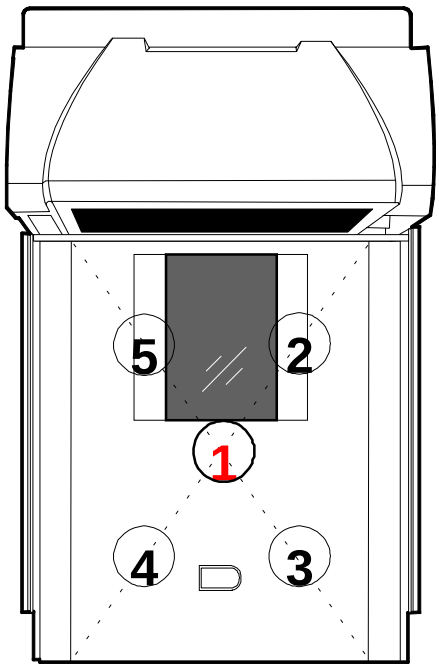
Shift Test

This test involves moving a weight off the center point of the top plate to check for continued accuracy.

1. Place 5.00 kg (15.00 lb.) of weight in position 1 on the Top Plate.
2. Move the weight to position 2 on the Top Plate. The display should show 5.00 ± 0.005 kg (15.00 ± 0.01 lb.).
3. Repeat step 2 for positions 3, 4, and 5.

4. Move the weight to position 1 again.
5. Remove all weights. The display should read 0.000 ± 0.000kg (0.00 ± 0.00 lb.).
6. Press the Scale Zero Button. Record the Cal and PAr values shown on the display.

Note: Positions 1 is in the center of the Top Plate. Positions 2, 3, 4, and 5 are halfway between the Top Plate center and the Top Plate corner.



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Secure the Calibration Switch

When you perform a scale calibration, someone must seal the Calibration Switch Cover. This may be done with a Lead / Wire Seal (NCR part number 603-8001097) using a Lead / Wire Seal Press (NCR part number 603-9000157) or a Film / Paper seal (obtained locally). The type of seal you use depends on your local laws; also, Weights and Measures officials may be required to attach the seal.

Note: In the United States and Canada, the audit trail can serve as an acceptable security seal when the NCR 7872 Scanner / Scale Remote Weight display is attached.

Step 5 Check the Scanner Operation

When power is applied to the NCR 7872, it automatically performs a power on wellness check on various components.

Scanner Units

After passing the power on wellness check, the Status indicator flashes green, a tone sounds, then the Status indicator turns red. The NCR 7872 is now operational.

Scanner/Scale Units

After the scanner passes the power on wellness check, the scale goes through a power on wellness check. During this time all segments on the remote display are turned ON so the operator can verify the display is working. Then the display reads 0.000kg or 0.00 lb. The Status indicator flashes red for five seconds, then it flashes green momentarily. A tone then sounds and the Status indicator turns red. The NCR 7872 is now operational.

If The Unit Does Not Pass The Power On Wellness Check

If an error occurs during the power on wellness check, the remote display displays an error code, and if available, the NCR 7872 emits an audible description of the error and what action to take. Refer to the section *Correcting Scanner/Scale Problems* in **Chapter 2** for additional assistance.

Verify Bar Code Reading

To verify the bar code reading operation of the NCR 7872, attempt to read a good tag on an item. The Status indicator should be red when ready to scan a bar code. A good read is indicated when the Status indicator turns green and a tone sounds (if enabled). Some good sample bar codes are provided to test the scanner.

Programming

The NCR 7872 comes from the factory with the programming parameters set to default values. The Communications Protocol is set at the factory to the specifications you requested on the order. However, you may want to make some parameter changes for the particular installation.

Any necessary programming changes to the NCR 7872 must be performed now. After programming changes have been completed, scan a number of bar codes to assure the scanner is working properly. The NCR 7872 does not have an On/Off switch. Use the circuit breaker switch in the checkstand that supplies power to the unit as the On/Off switch.

Setting the Program Parameters

Caution: Some host terminals can corrupt the NCR 7872 program if they are running and are connected to the NCR 7872 while you are making program changes. Either turn off the host terminal or disconnect the interface cable before scanning any programming tags.

To make changes to the program parameters, enter information from the Programming Worksheets located toward the back of this book. The Programming Worksheets identify all the available program parameters. Each worksheet relates to a specific programming mode. Most programming options have defaults, identified by a heavy box, that are determined at the factory. Scanning the **Default** tag as the first tag after applying power to the unit sets the parameters to these values.

Changing the NCR 7872 program is accomplished by scanning the proper sequence of programming tags, that are included with the unit. Following are three major steps for making program changes.

1. Enter the Base Programming state by scanning the **Programming Mode** tag; must be first tag scanned after applying power.
2. Select a Programming Worksheet and enter its parameter data by scanning the appropriate Hex tags.

3. Save the program by scanning the **Save and Reset** tag.

Note: In most cases the factory determined defaults are the correct parameter setting. However, if you do need to make changes, it is recommended that you first set all parameters to default values and then make any necessary changes to the appropriate parameters.

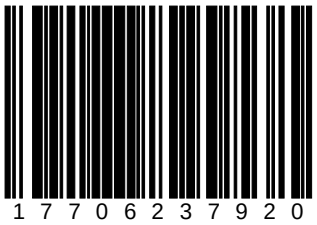
Scan Sample Tags

Now you should scan some sample tags to verify that the NCR 7872 is communicating with the host terminal. The following are four good tags that you can use; however, the 7872 must be programmed to read these tags. The default settings are UPC-A enabled and the others disabled.

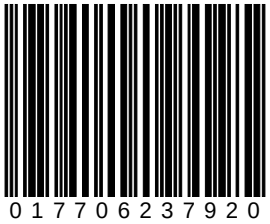
UPC-A

Code 39

Code 128



Interleaved 2 of 5

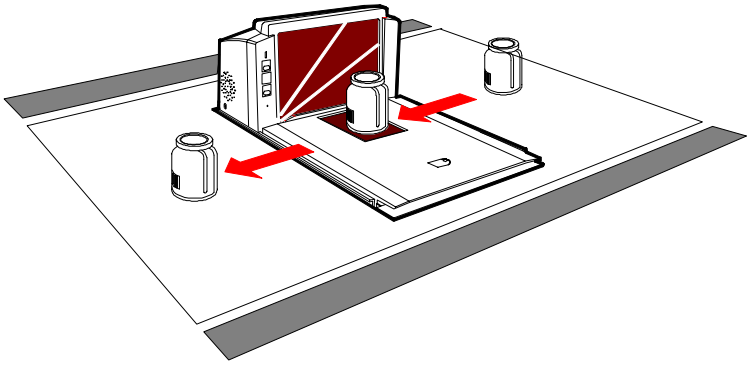


Chapter 2: Operation

Operating the Scanner

The NCR 7872 is a fixed position device that is installed in a checkout counter. It is not handled or moved by the operator during operation. The NCR 7872 is maintained and serviced by trained service personnel only. The operator has no access to any laser module components.

The NCR 7872 does not have a power switch. However, you turn it on and off by using the circuit breaker switch, located in the checkstand, that supplies power to the unit. Be sure this switch is in the On position. The Status Indicator on the Operator Display Panel is Red when the NCR 7872 is ready. The correct way to scan is to slide an item from the checkstand, across the scanner, and back onto the checkstand.



17541

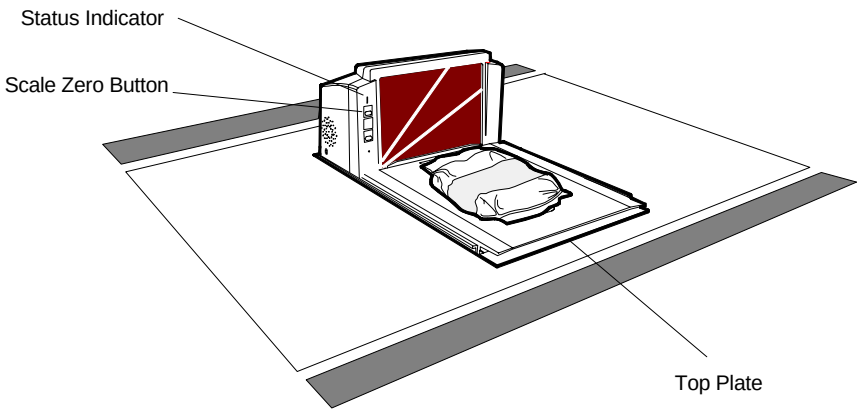
With a good scan, the Status Indicator Flashes Green, then turns Red. An audible tone will also be heard. Nothing happens if the bar code is not read.

Operating the Scale

The NCR 7872 typically takes up to one second to weigh an item, depending on the item's weight. The heavier the item, the longer it takes. Before weighing an item, it is a government regulatory requirement that the scale display is displaying all zeros. If not, press the Scale Zero Button.

Note: The item you are weighing should be placed in the center of the Top Plate. Make sure the item does not overhang onto the checkstand; whatever is weighed must fit fully on the Top Plate.

Note: When the scale weighs an item, the Status Indicator flashes Green and a good weigh tone is sounded. Nothing happens if the scale cannot weigh an item.

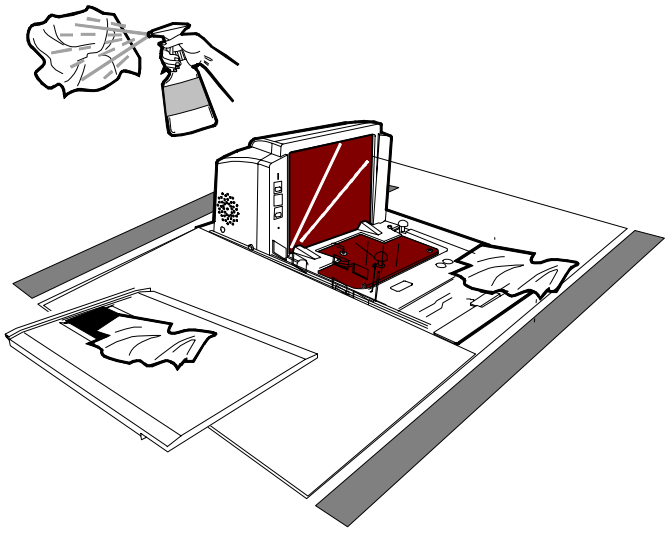


Cleaning the NCR 7872

Keeping the scan windows clean helps keep the read rate exceptionally high. During normal operation the scan windows get dirty, and if you permit the dirt to accumulate, performance degrades to the point where the scanner cannot read bar codes. On the NCR 7872 Scanner that includes the Operator Convenience option, the Please Clean Window indicator flashes when the scan windows need cleaning. The window can be cleaned anytime it appears dirty or performance seems to be degrading.

To clean the scan window, use a soft cloth moistened with a common, non-abrasive, liquid window cleaner. Be sure to spray the cleaner onto the cloth, not directly onto the NCR 7872

Caution: Scale problems can occur from debris collecting under the Top Plate. It is very important to keep the area under the Top Plate clean and free of debris to prevent interference when weighing items. Cleaning under the top plate should become part of the regular cleaning duties in your store.



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Correcting 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 electrical outlet for proper power.
Scanner does not operate	Red Flashing Green Flashing	Off	Sleep mode	Pass anything in front of the Motion Detector.
Scanner does not operate	Red Flashing Green Off	Off	Communications is IBM 468x/9x and scanner is off-line	Verify that the IBM terminal is turned on. Verify that the IBM terminal is recognizing the NCR 7872. Verify that the Interface Cable is properly connected.
Scanner does not read tags	Red Flashing Green Off	Off	Internal failure	Remove power from the NCR 7872 and then supply power again. If the problem is not corrected, have scanner repaired.
Scanner does not read tags	Red Flashing Green Off	Off	Communications is IBM 468x/9x and scanner is disabled due to command from terminal	Log on to the IBM terminal or clear NOF item.
Scanner reads only two tags	Red On Green Off	Off	NCR 7872 is not communicating with host terminal	Verify that the Interface Cable is properly connected. Remove power from the NCR 7872 and then supply power again. If the problem is not corrected, have scanner or host terminal repaired.

Correcting Scale Problems

Problem	Possible Cause	Corrective Action
Any Scale Error or Problem	Debris and trash under Top Plate	Remove the top plate and thoroughly clean out all debris and trash.
Error code 5---- displays	Scale drift	Verify that nothing is on the scale. Lift the Top Plate and verify that no objects are under it. Reseat the Top Plate and push Scale Zero button. If error code persists, have unit repaired.
Error code 4---- displays	Possible scale error	Press Scale Zero button and retry. If error code persists, have unit repaired.
Error code 4---- displays	Slight vibration to scale when calibrating	Calibrate scale, being sure not to permit any external scale movement while the weights are on the scale.
Scale display is blank	Top Plate is being prevented from moving down.	Remove interference around edge of Top Plate and checkstand. Remove any foreign objects from under the Top Plate.

Chapter 3 Programming

Setting the Communication Protocol

Setting the communication protocol requires both a hardware change and a software change. Hardware changes are made to strapping on the system board inside the NCR 7872 Scanner/Scale. Software changes are performed using the programming tags.

To change the communications protocol strapping, refer to *NCR 7872 Scanner/Scale Repair Guide* (B005-0000-1180).

Determine the communications protocol with the following procedure.

1. Apply power to the NCR 7872.
2. Scan the **Diagnostic Mode** tag; must be the first tag scanned after applying power. Scan the **Hex 3** tag. The good read tone for this tag sounds (three beeps).

   If the Voice feature enabled, the communications protocol is given audibly. If Voice is not enabled, the Status indicator flashes green and the tone beeps a specific number of times to identify the communication protocol.

   1 Short, high-pitched beep
   OCIA NCR Short
   1 Beep
   OCIA NCR Long
   2 Beeps
   OCIA Non-NCR Dual Cable
   3 Beeps
   IBM 468x/9x Port 4A
   4 Beeps
   IBM HHBCR

6 Beeps
RS-232
7 Beeps
OCIA Single-Cable
8 Beeps
OCIA Dual-Cable
11 Beeps
Casio 4-Bit Parallel Dual Cable
12 Beeps
IBM 1520 (BCR)
13 Beeps
TEC 4-Bit Parallel Dual Cable

3. Remove power from the NCR 7872.

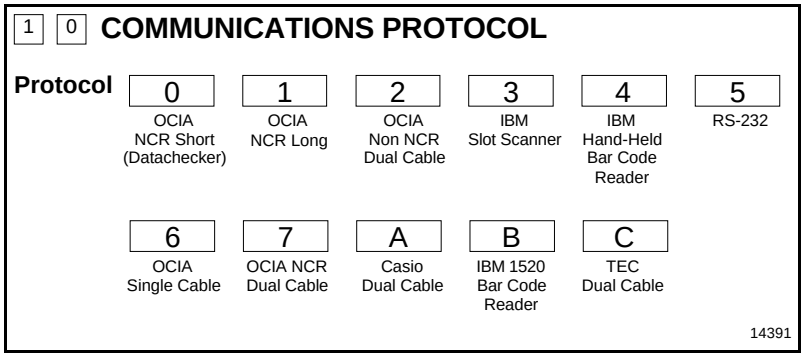
If communications cannot be established after verifying the communications protocol programming, and all cable connections, refer to the *NCR 7872 Scanner/Scale Repair Guide* (B005-0000-1180) or your NCR representative.

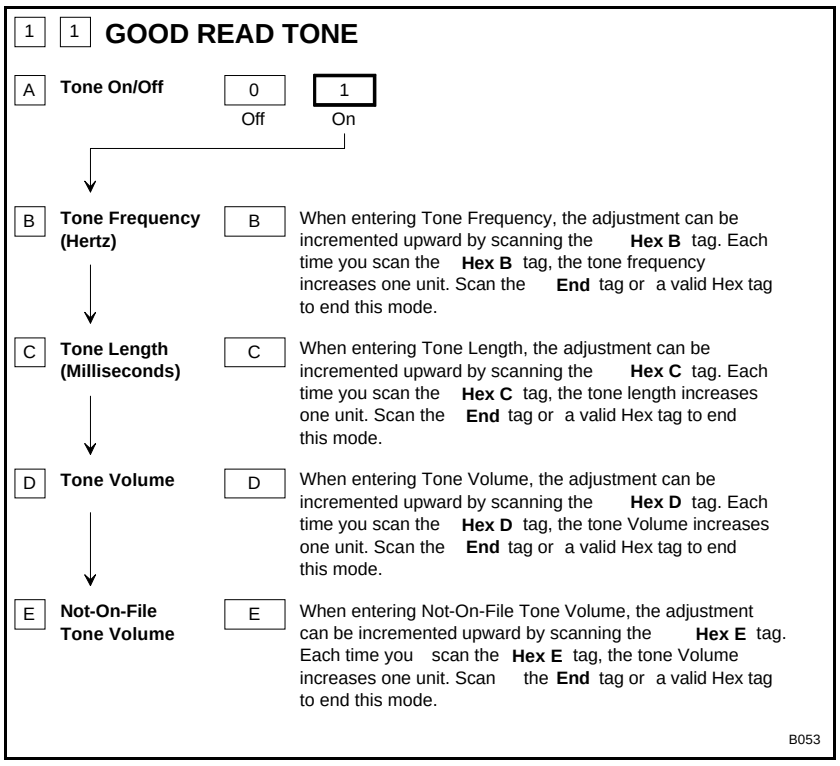
Good Read Tone

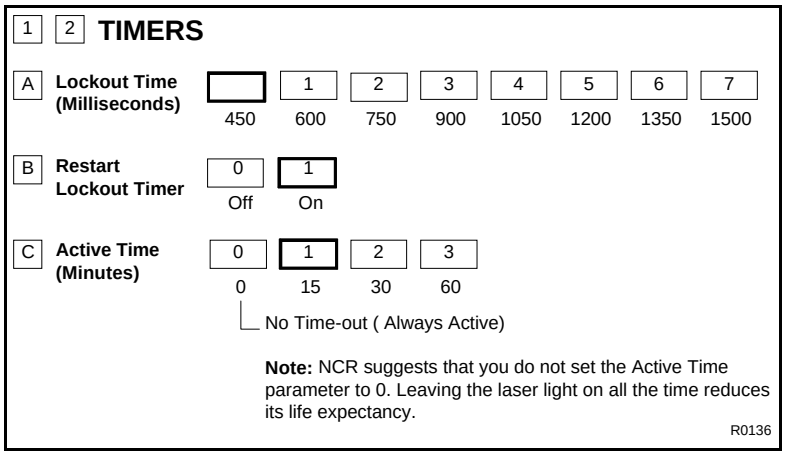
The good read tone is the sound that is produced when an item is scanned and accepted by the scanner. In installations where the checkstand and operators are close together, it is advantageous to alter the sound of the good read tone on each scanner. This will allow an operator to distinguish his or her good read tone from that of her associate who is operating the scanner at the same time.

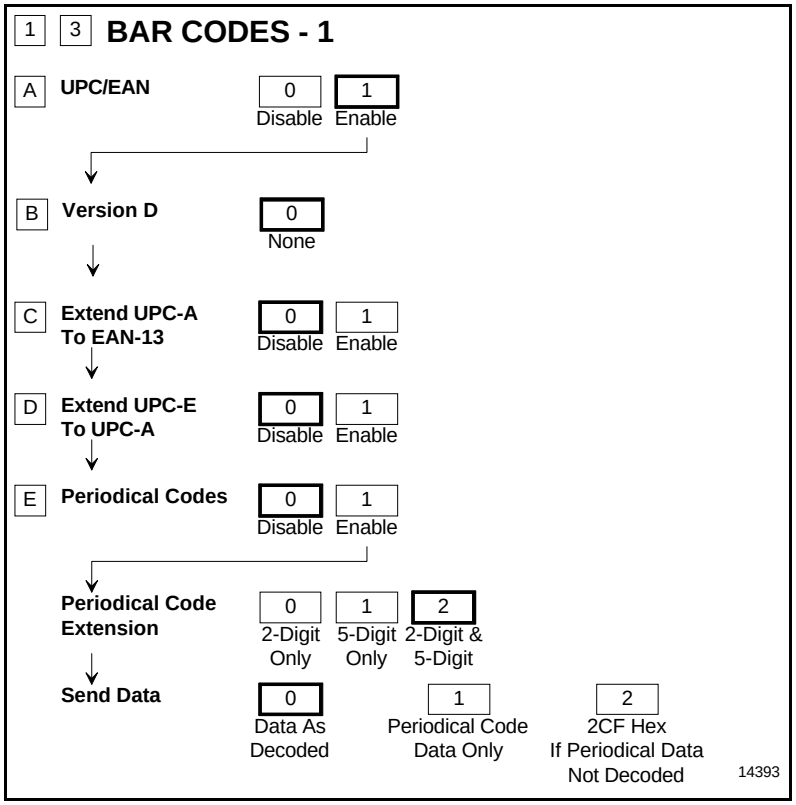
Please see the *NCR 7872 Scanner/Scale User Guide* (B005-0000-1179) for more detailed information.

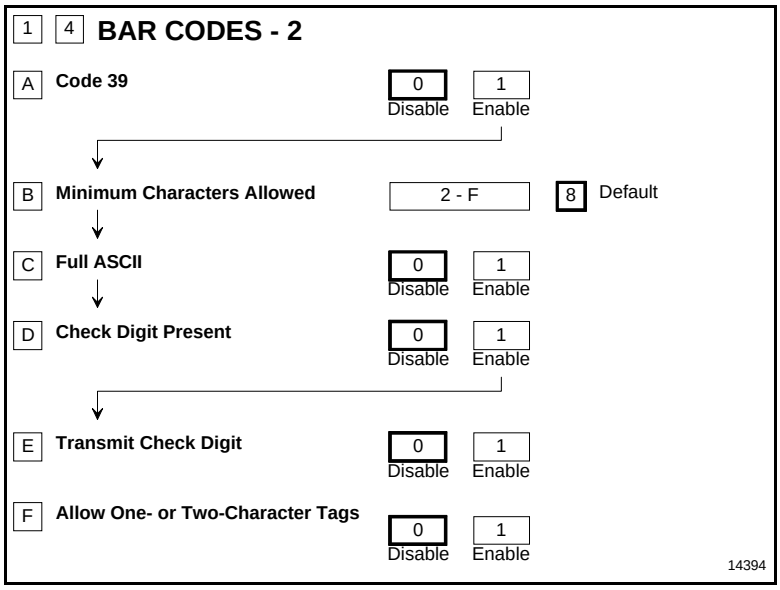
Programming Worksheets

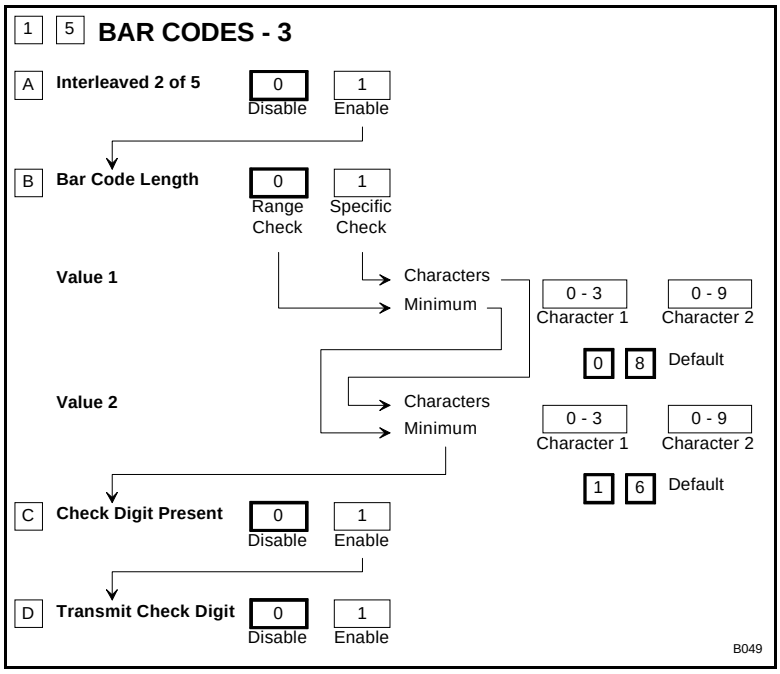


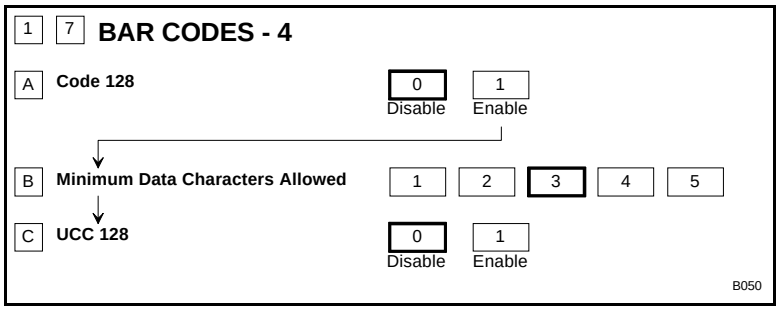


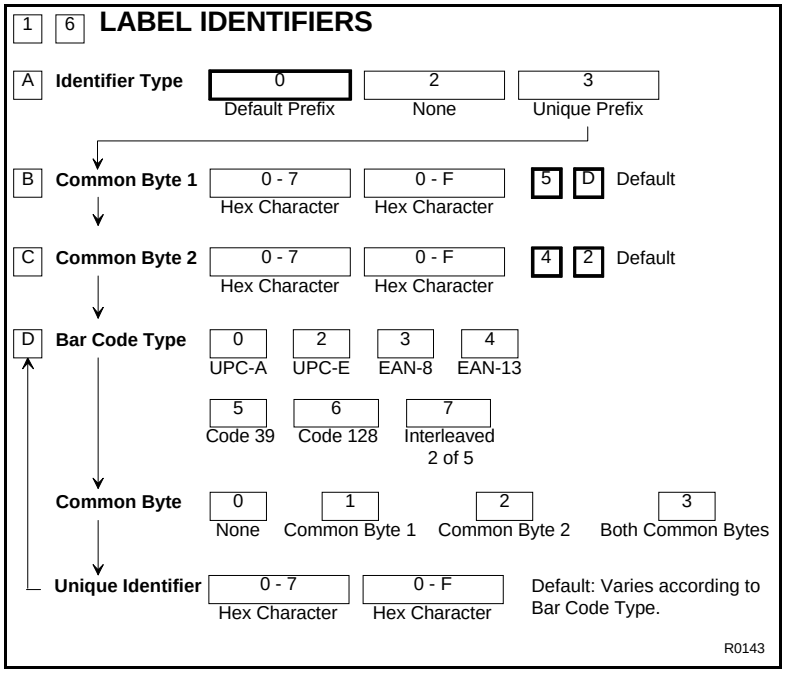

1 2 TIMERS
A Lockout Time (Milliseconds)
0 1 2 3 4 5 6 7
450 600 750 900 1050 1200 1350 1500
B Restart Lockout Timer
0 1
Off On
C Active Time (Minutes)
0 1 2 3
0 15 30 60
No Time-out (Always Active)
Note: NCR suggests that you do not set the Active Time parameter to 0. Leaving the laser light on all the time reduces its life expectancy.
R0136


1 3 BAR CODES - 1
A UPC/EAN
0 1
Disable Enable
B Version D
0
None
C Extend UPC-A To EAN-13
0 1
Disable Enable
D Extend UPC-E To UPC-A
0 1
Disable Enable
E Periodical Codes
0 1
Disable Enable
Periodical Code Extension
0 1 2
2-Digit Only 5-Digit Only 2-Digit & 5-Digit
Send Data
0 1 2
Data As Decoded
Periodical Code Data Only
2CF Hex If Periodical Data Not Decoded
14393


1 4 BAR CODES - 2
A Code 39
0 Disable
1 Enable
B Minimum Characters Allowed
2 - F
8 Default
C Full ASCII
0 Disable
1 Enable
D Check Digit Present
0 Disable
1 Enable
E Transmit Check Digit
0 Disable
1 Enable
F Allow One- or Two-Character Tags
0 Disable
1 Enable
14394


1 5 BAR CODES - 3
A Interleaved 2 of 5
0 Disable
1 Enable
B Bar Code Length
0 Range Check
1 Specific Check
Value 1
Characters
Minimum
0 - 3 Character 1
0 - 9 Character 2
0 8 Default
Value 2
Characters
Minimum
0 - 3 Character 1
0 - 9 Character 2
1 6 Default
C Check Digit Present
0 Disable
1 Enable
D Transmit Check Digit
0 Disable
1 Enable
B049


1 7 BAR CODES - 4
A Code 128
0 Disable
1 Enable
B Minimum Data Characters Allowed
1 2 3 4 5
C UCC 128
0 Disable
1 Enable
B050


1 6 LABEL IDENTIFIERS
A Identifier Type
0 Default Prefix
2 None
3 Unique Prefix
B Common Byte 1
0 - 7 Hex Character
0 - F Hex Character
5 D Default
C Common Byte 2
0 - 7 Hex Character
0 - F Hex Character
4 2 Default
D Bar Code Type
0 UPC-A
2 UPC-E
3 EAN-8
4 EAN-13
5 Code 39
6 Code 128
7 Interleaved 2 of 5
Common Byte
0 None
1 Common Byte 1
2 Common Byte 2
3 Both Common Bytes
Unique Identifier
0 - 7 Hex Character
0 - F Hex Character
Default: Varies according to Bar Code Type.
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: Parity must be Odd or Even on a scale unit; **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
RTS Low CTS Ignored	RTS High CTS Ignored	Raise RTS Wait for CTS

3	4	5
Raise RTS Ignore CTS	RTS Low Wait for CTS	RTS High Wait for CTS

11809

2 1 RS-232 PARAMETERS - 2

A BCC Options

0	1
Disable	Enable

Default: Scanner Only - Disable
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	Enable UPC-A	Disable UPC-A	Enable UPC-A
Disable EAN-8	Enable EAN-8	Disable EAN-8	Enable EAN-8
Disable EAN-13	Enable EAN-13	Disable EAN-13	Enable EAN-13
Disable UPC-E	Disable UPC-E	Enable UPC-E	Enable UPC-E

Note: Check Digit parameter also applies to UPC-E when using for OCIA communications.

11810

2 2 RS-232 PREFIX BYTE

A **Prefix Byte** — 0 Disable, 1 Enable

B **ASCII Code** — 0 - 7 Hex Character (ASCII Code Chart); 0 - F Hex Character (ASCII Code Chart); Default 0 2

R0035

2 3 RS-232 Terminator BYTE

A **Terminator Byte** — 0 Disable, 1 Enable

Note: A Terminator Byte is required on a scale unit. If you select **Disable**, it is ignored and an ETX (03) is sent.

B **ASCII Code** — 0 - 7 Hex Character (ASCII Code Chart); 0 - F Hex Character (ASCII Code Chart); Default 0 3

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2 4 RS-232 COMMUNICATIONS OPTIONS

Message Delay	0 No Delay	1 10ms Delay	2 50ms Delay
Scanner or Scanner/Scale Format	4 Scanner Only	5 Scanner/Scale	
Normal or Eavesdrop Mode	6 Normal Mode	7 Eavesdrop Mode	
Good Weigh Tone	8 Disable	9 Enable	

12163

3 0 SCALE PARAMETERS

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

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

9.995 kg/13.995 kg
- B — Toggle Between 9.995 kg and 13.995 kg

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: Enabled

IBM Tag Data Format
- E — Hex
- F — ASCII

11823

3 6 Dual Cable Interface Options

A **Scale Type**
- 0 — No Adapter - Exit Parameter
- 1 — Avery
- 2 — Weightronix
- 3 — Tec Parallel
- 4 — Casio Parallel
- 5 — Datachecker
- 6 — Toledo

14396

ASCII Code Chart

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

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