

U ***SER MANUAL***

4-Point Force Distribution Tester

Manual Number 6864736

**cascade[®]
corporation**

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	Page
INTRODUCTION	<i>i</i>
INSTALLATION	1
SETUP	11
MEASURING CLAMP FORCE	13
DISPLAY CONFIGURATION	16
Display Buttons	16
Accessing the Home Screen	16
Navigation Tree	16
Start Screen	17
Data Screen	18
Setup Screen	19
DATA	21
PARTS	23
APPENDIX	26
Letters and Special Characters	26

INTRODUCTION

This manual is for the Cascade 4-Point Force Distribution Tester. Contents include trolley Installation and setup, measuring clamp force, display configuration, reviewing recorded data and parts.

IMPORTANT: For service, technical and software questions about the display, contact the service support department of Antibus Scales & Systems, Inc. (574) 233-3160 (U.S. only). International countries should contact a local Rice Lake® Weighing Systems dealer.

Special Definitions

The statements shown appear throughout this manual where special emphasis is required. Read all **WARNINGS** and **CAUTIONS** before proceeding with any work. Statements labeled **IMPORTANT** and **NOTE** are provided as additional information of special significance or to make the job easier.



WARNING – A statement preceded by **WARNING** is information that should be acted upon to prevent **bodily injury**. A **WARNING** is always inside a ruled box.

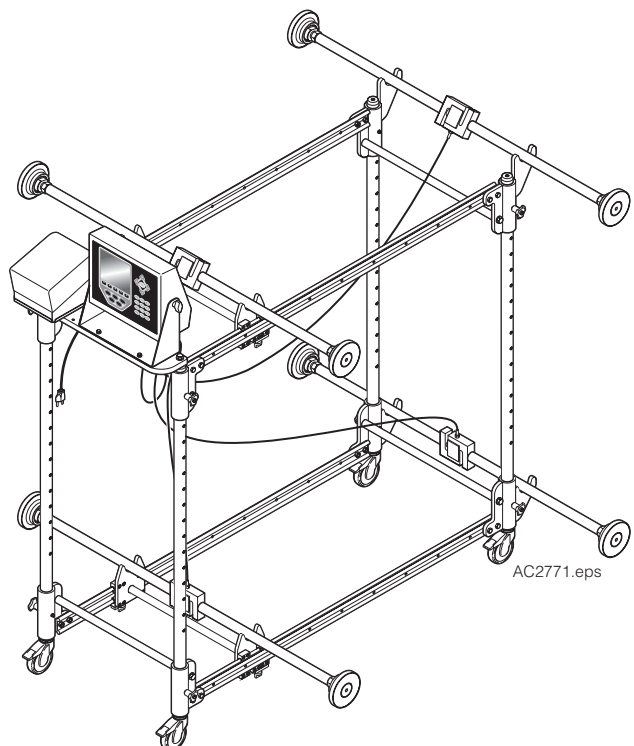
CAUTION – A statement preceded by **CAUTION** is information that should be acted upon to prevent machine damage.

IMPORTANT – A statement preceded by **IMPORTANT** is information that possesses special significance.

NOTE – A statement preceded by **NOTE** is information that is handy to know and may make the job easier.

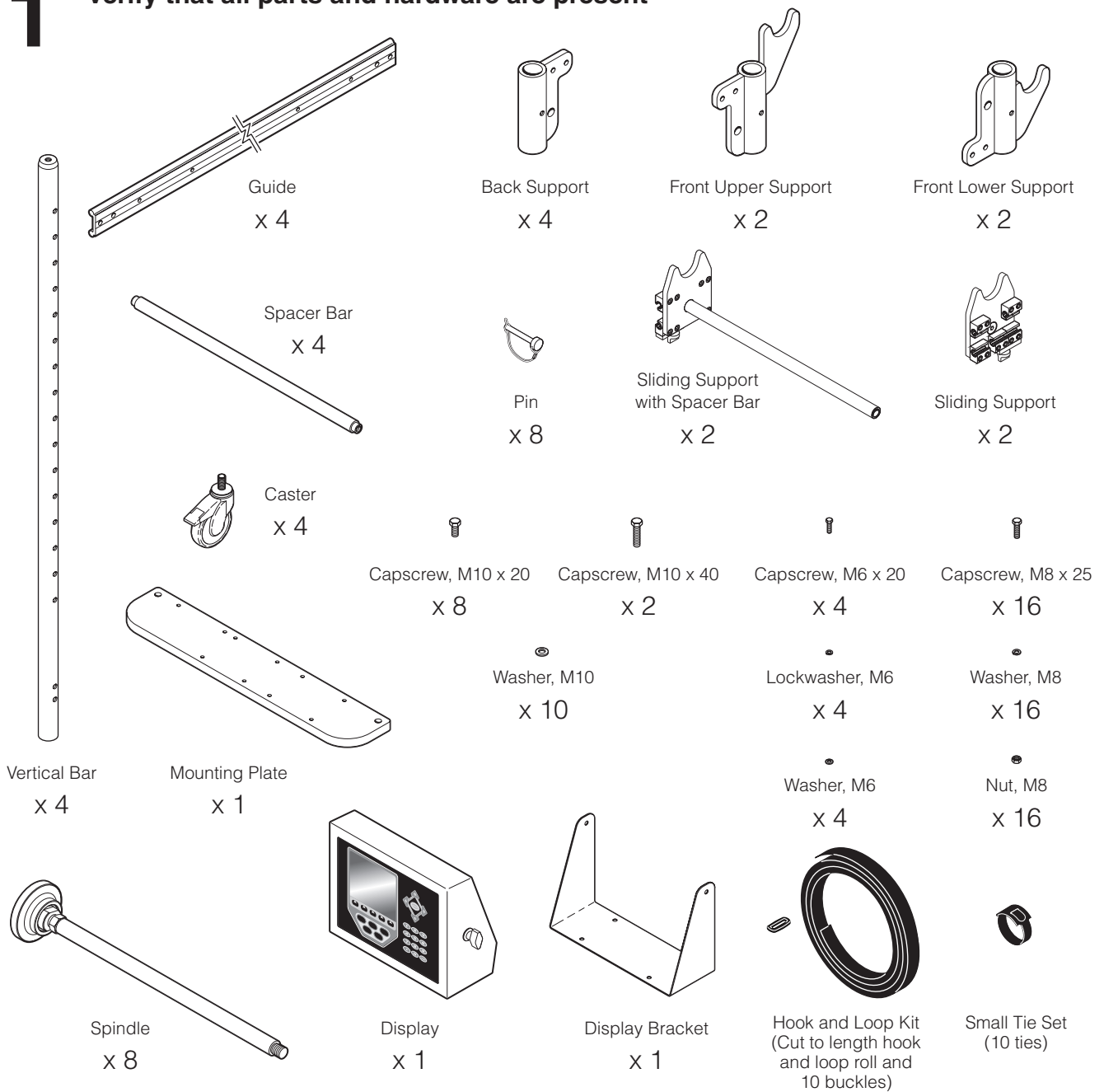


WARNING: When operating the attachment and 4-Point Force Distribution Tester, verify that all personnel are clear of the 4-Point Force Distribution Tester prior to clamping on the spindles.

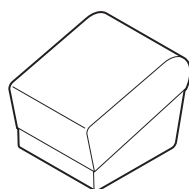


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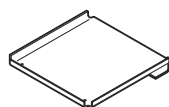
1 Verify that all parts and hardware are present



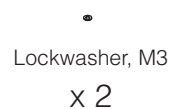
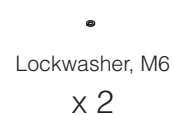
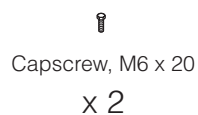
Printer Option, if equipped



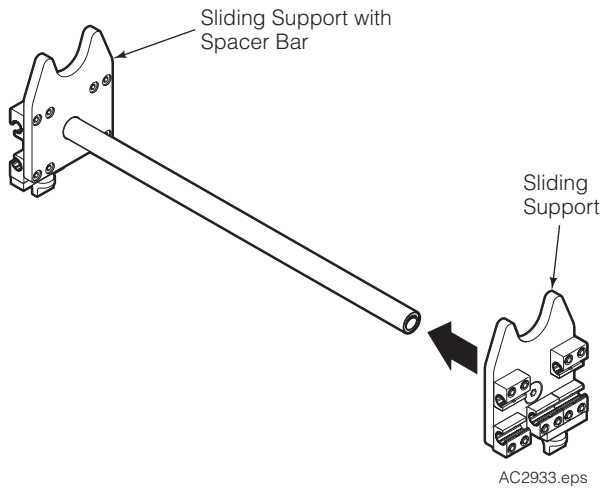
Printer
x 1



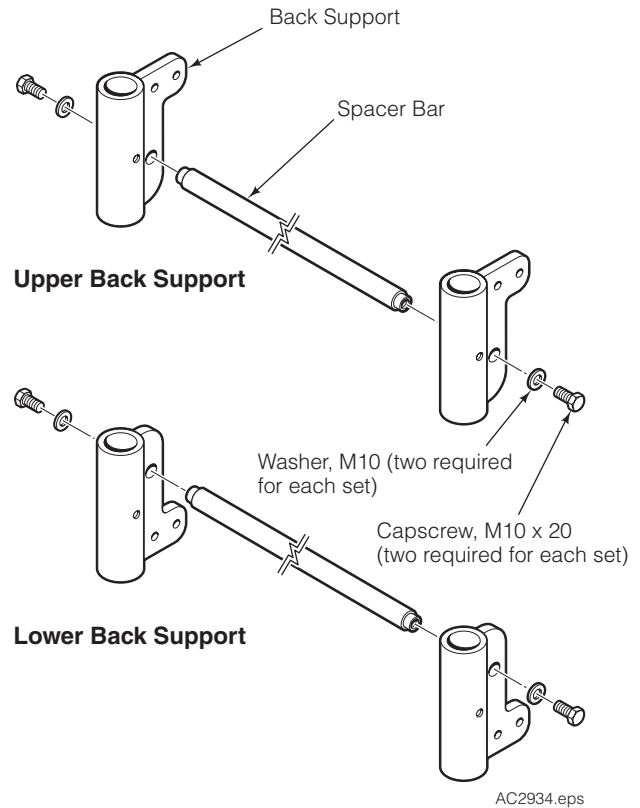
Printer Bracket
x 1



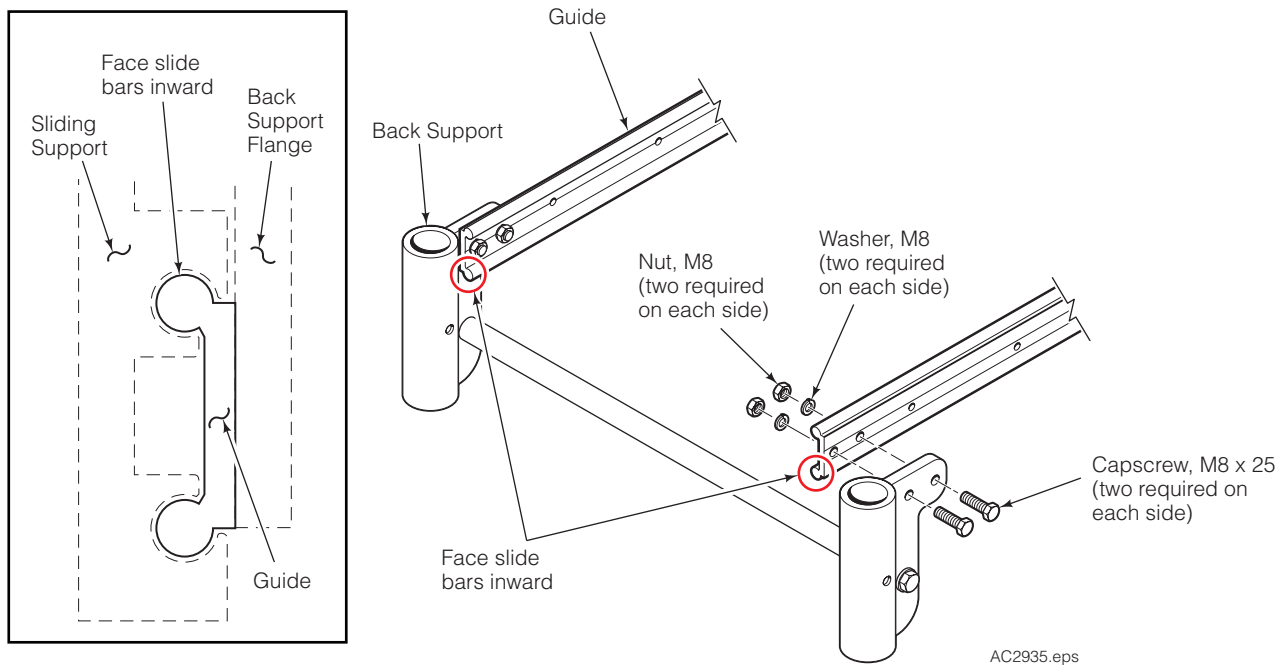
2 Assemble the sliding support, two sets



3 Assemble back supports with spacer bar, two sets

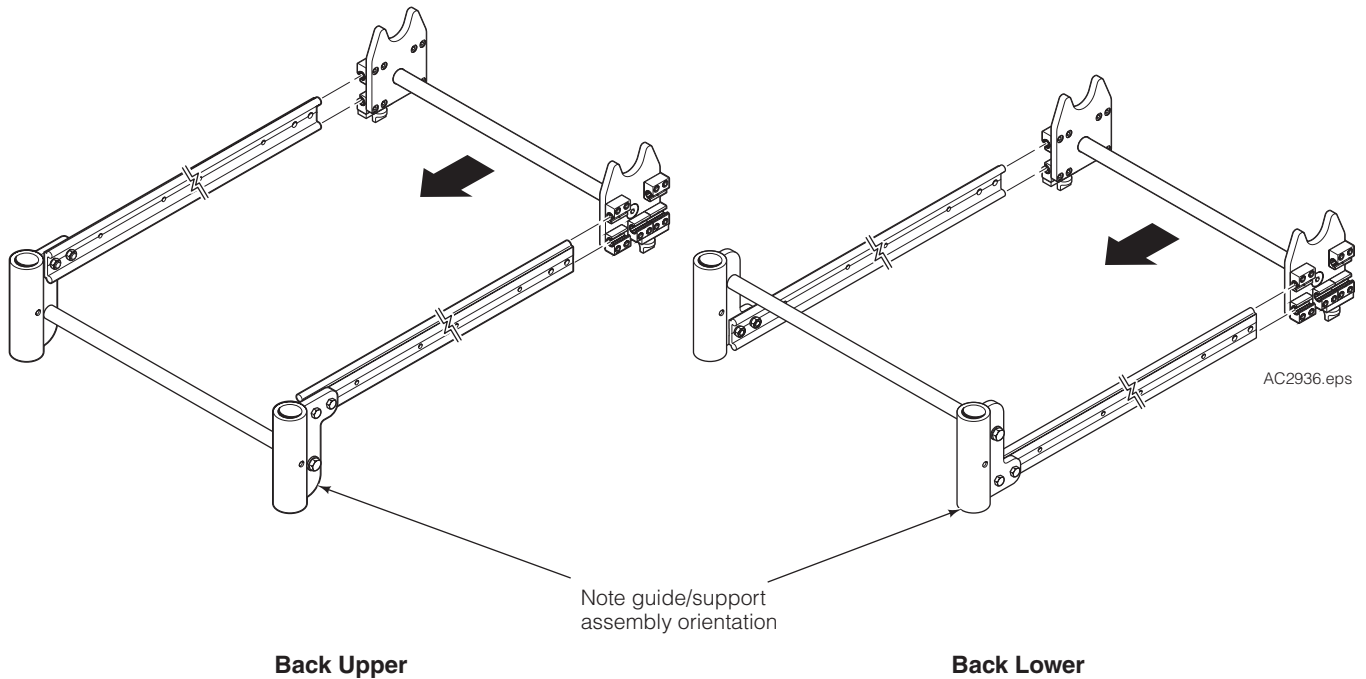


4 Install a guide to each back support flange. Face the guide's slide bar side inward.

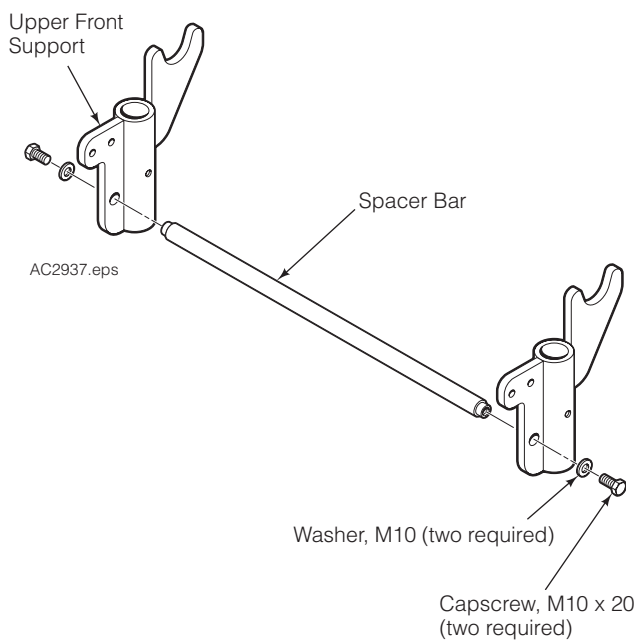


INSTALLATION

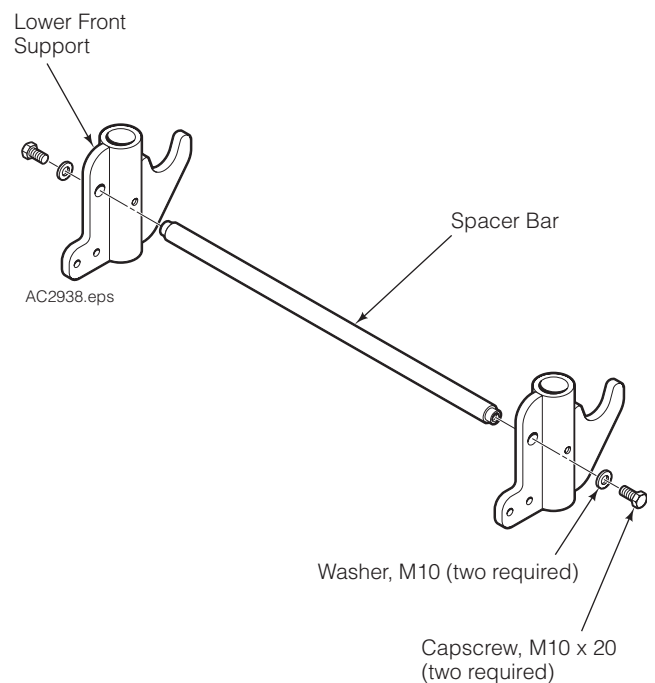
5 Install sliding support assembly onto each back support/guide assembly



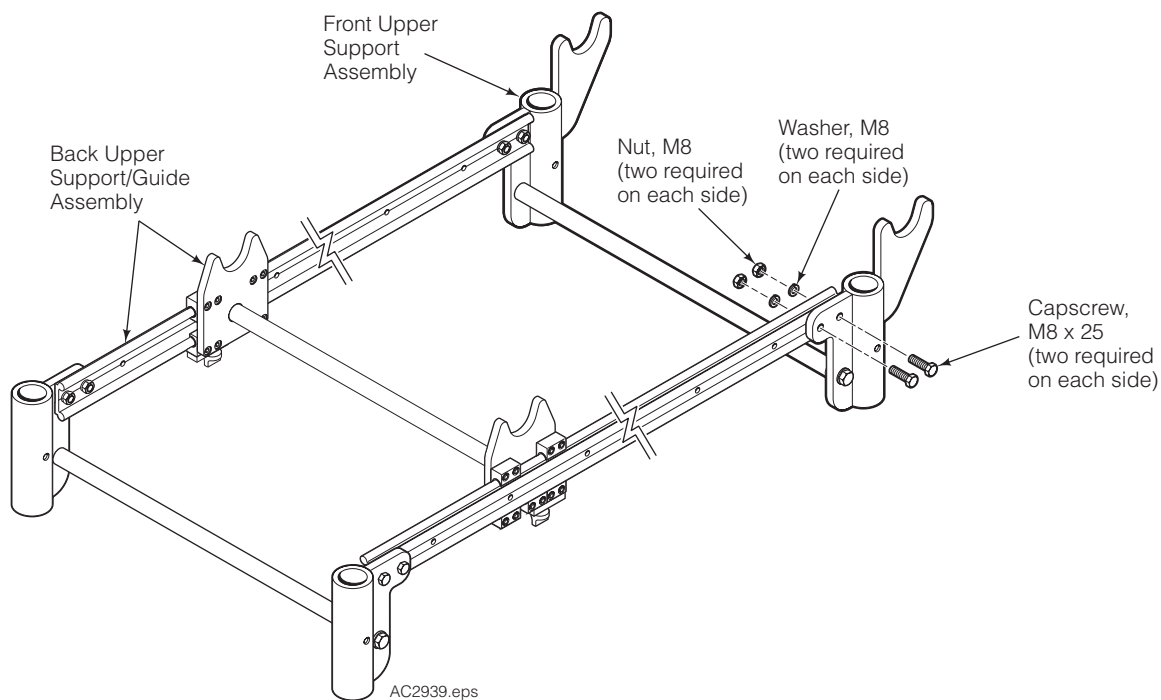
6 Assemble the front upper supports with spacer bar



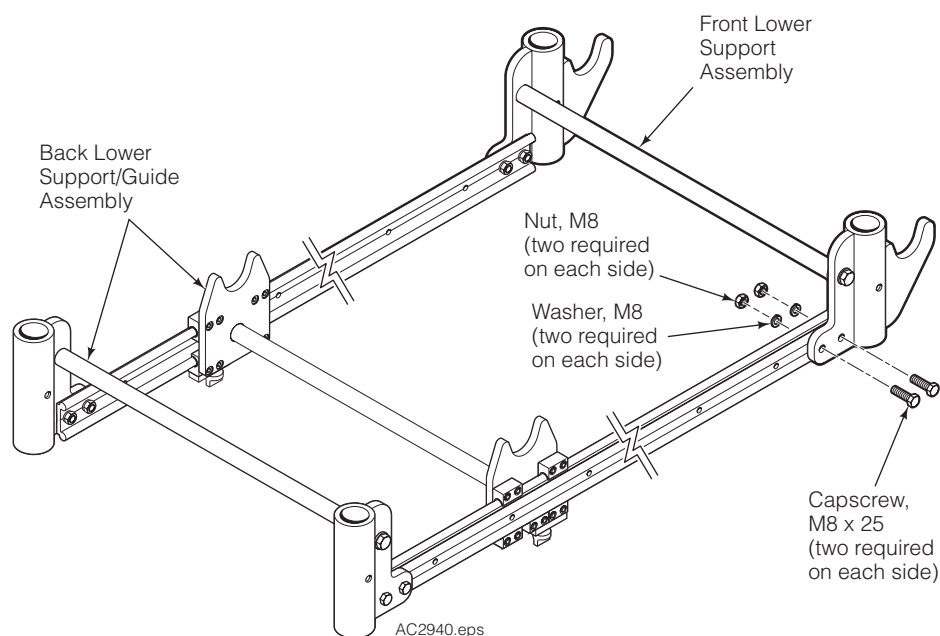
7 Assemble the front lower supports with spacer bar



8 Install back upper support/guide assembly to the front upper support assembly

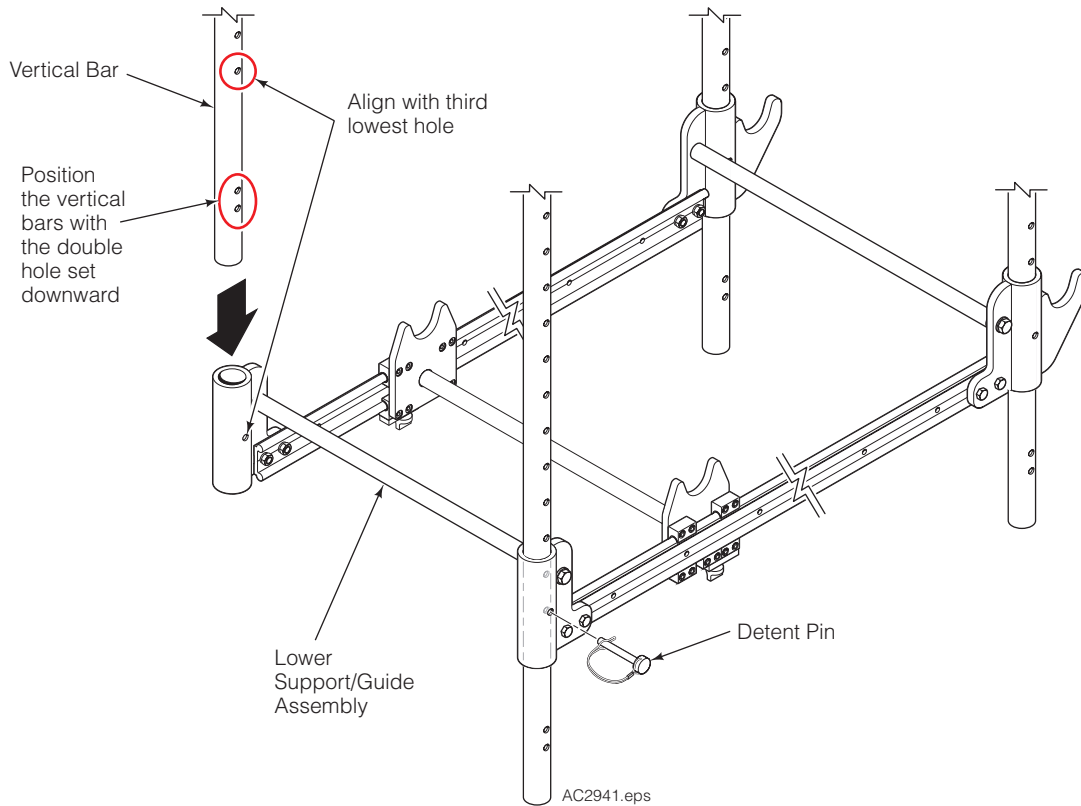


9 Install back lower support/guide assembly to the front lower support assembly

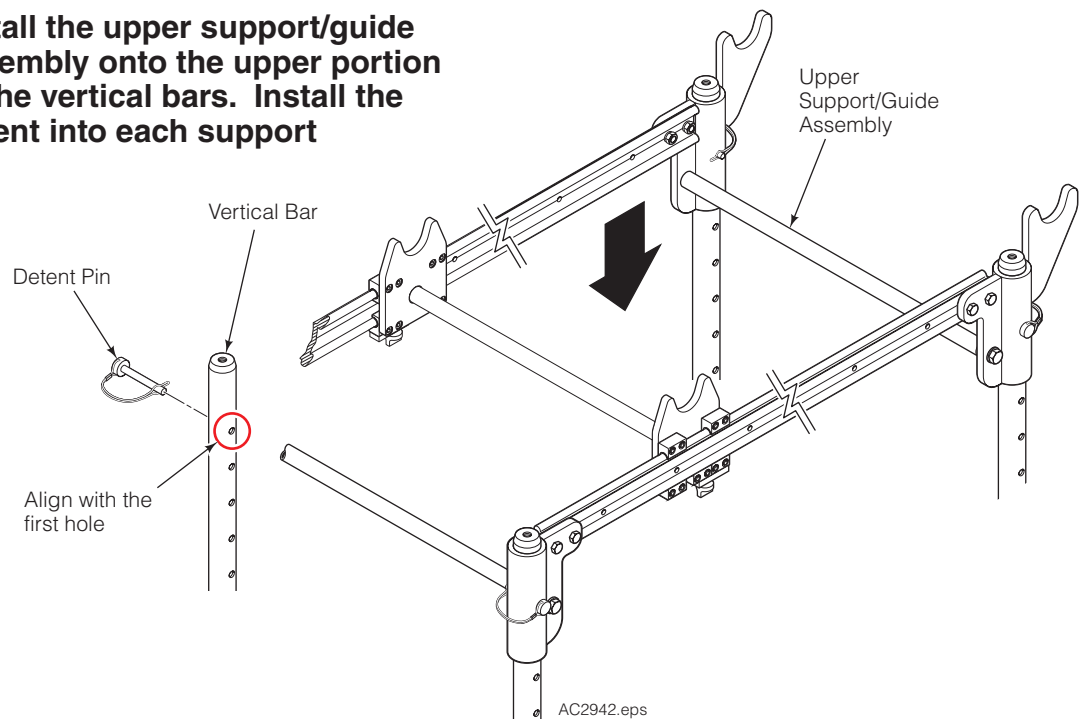


10 Install vertical bars into the lower support/guide assembly. Install the detent pin into each support.

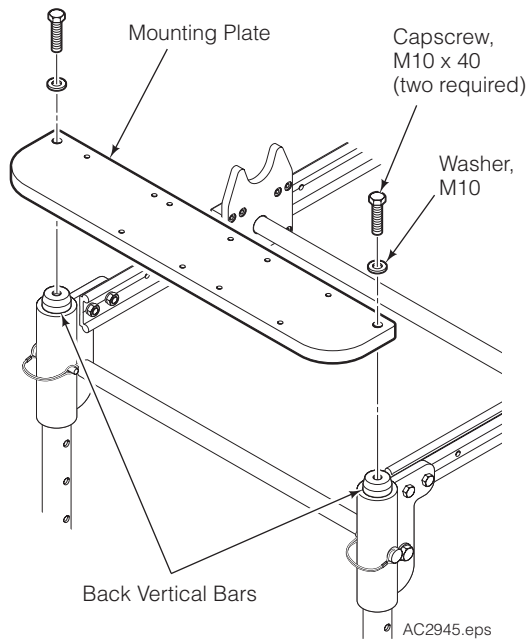
NOTE: The verticals bars require the same orientation.



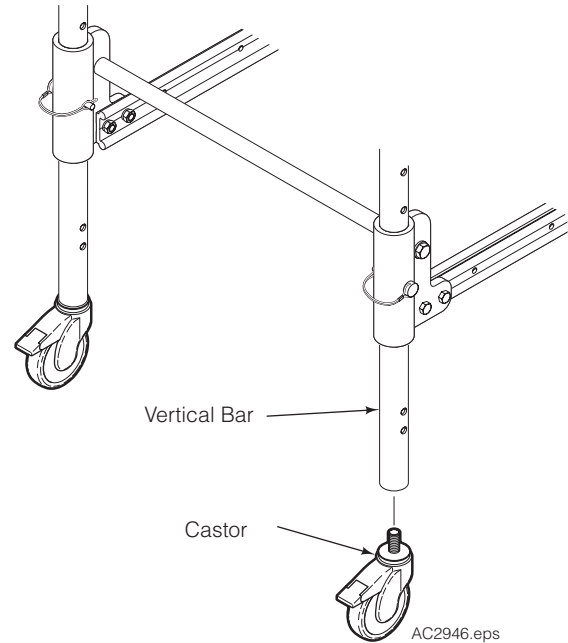
11 Install the upper support/guide assembly onto the upper portion of the vertical bars. Install the detent into each support.



12 Install the mounting plate on top of the back vertical bar

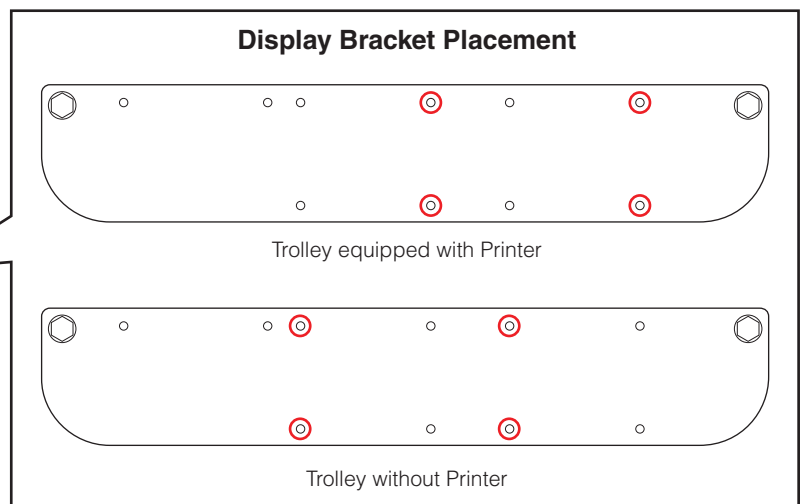
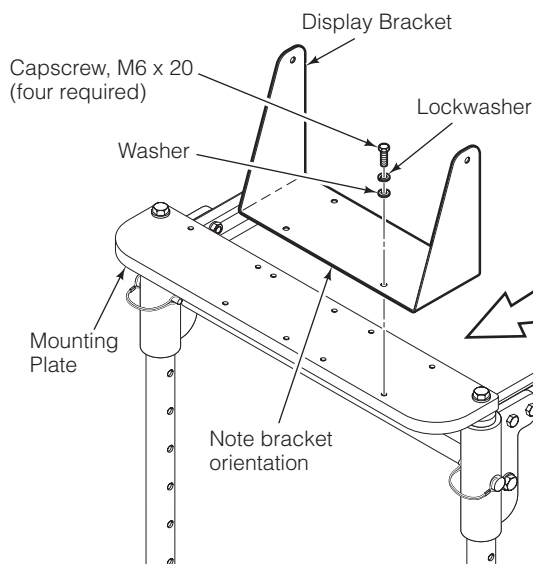


13 Install the castor wheels to the vertical bars



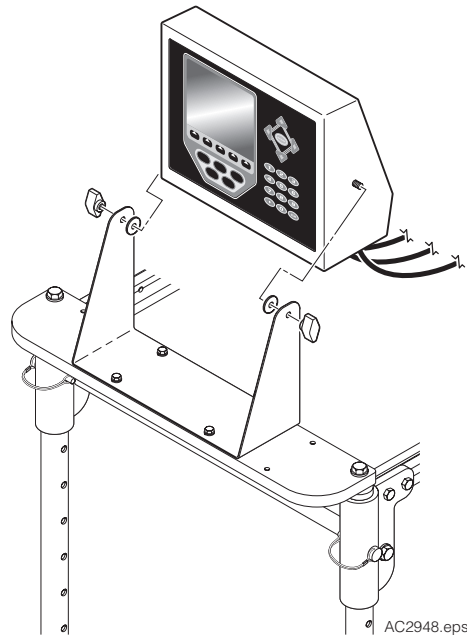
14 Install the display bracket to the mounting plate

NOTE: The display may need to be removed prior to bracket installation.



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15 Install the display to the display bracket



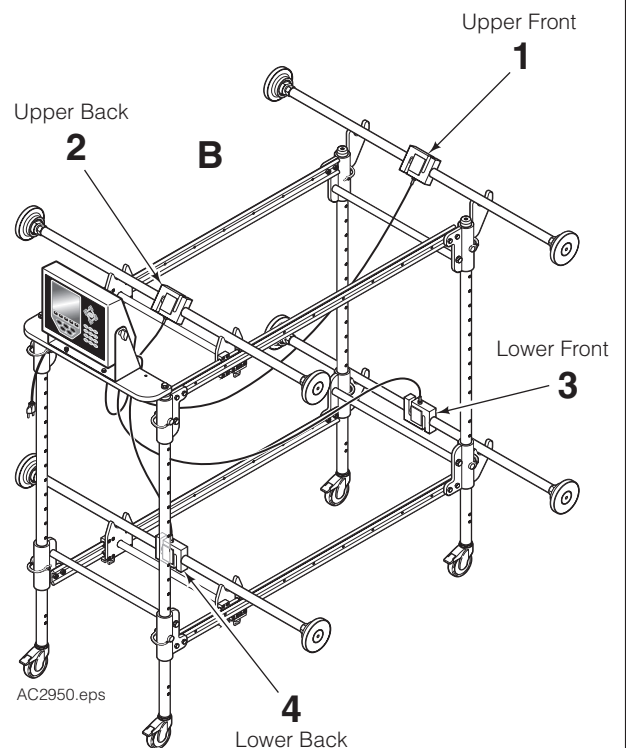
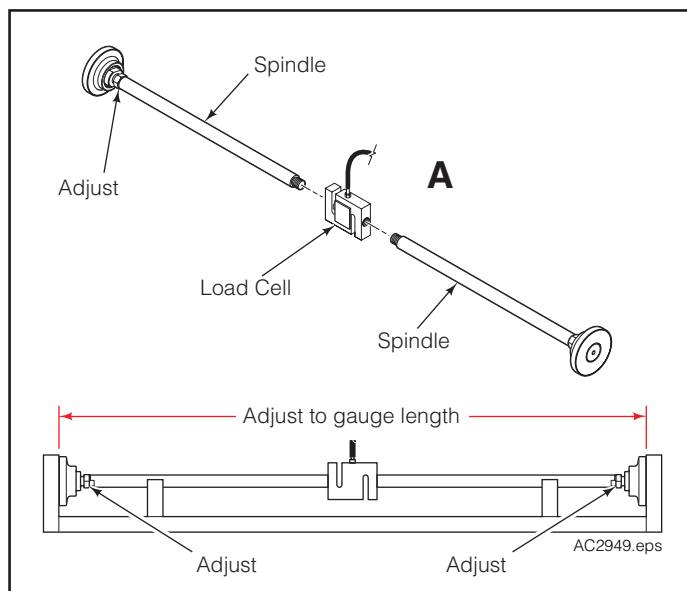
16 Install the spindles to load cells

A Install two spindles into each load cell fully seating threads. Use the gauge to set the overall length of each assembly. Adjust length at pads.

CAUTION: Failure to set the overall length of each spindle assembly to same length, will result in inaccurate measured clamp force results.

B Each load cell is marked with a number. Place the load cell assembly on supports, as shown.

C Secure extra cord length with provided small hook-and-loop ties.

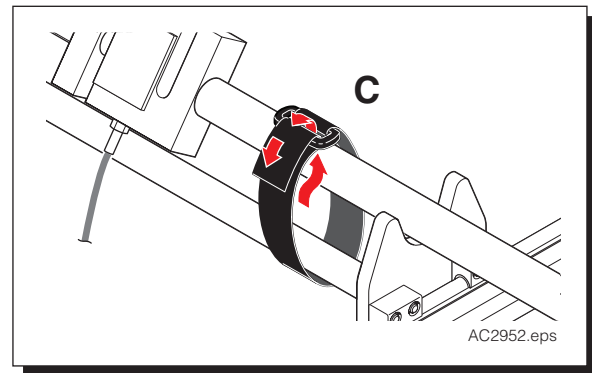
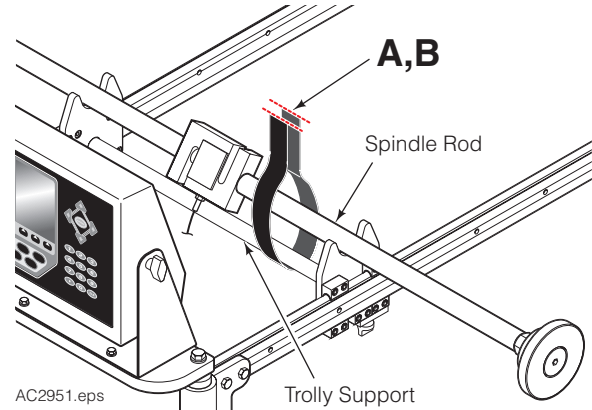


17 Secure spindle assemblies and gauge

Using the hook and loop tie kit, perform the following for **each** spindle assembly:

- A** Use the large tie to **loosely** measure around the spindle rod and trolley support, as shown.
- B** Cut tie with additional length for securing the loop side on each side of the buckle and to allow for further adjustment. Cut an additional large tie of the same length.
- C** Loop the tie around the ends of each buckle while **loosely** securing the spindle to trolley support on each side of the spindle's load cell.

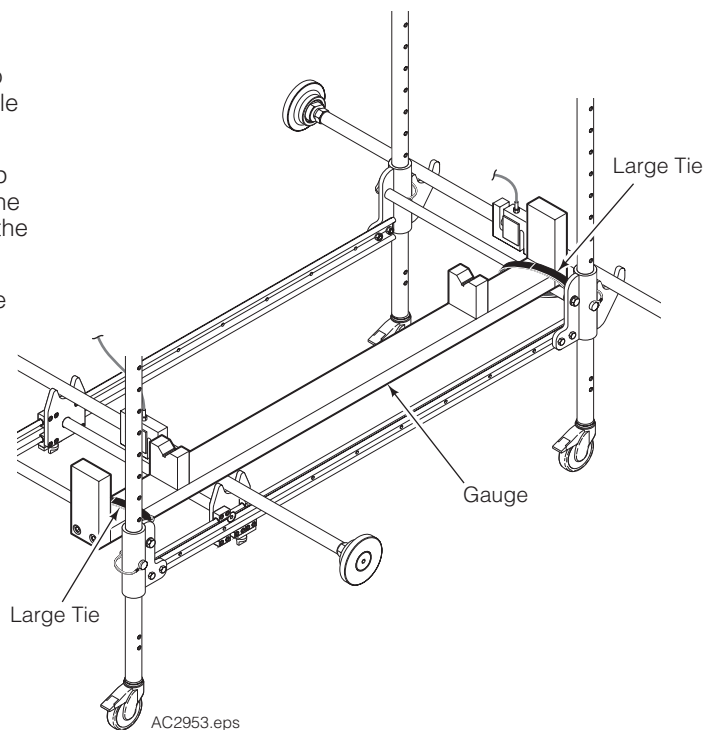
IMPORTANT: Large ties are used to loosely secure the spindle assemblies to the trolley. Tightening the ties will result in inaccurate clamp force readings.



18 Secure gauge (optional)

For the gauge:

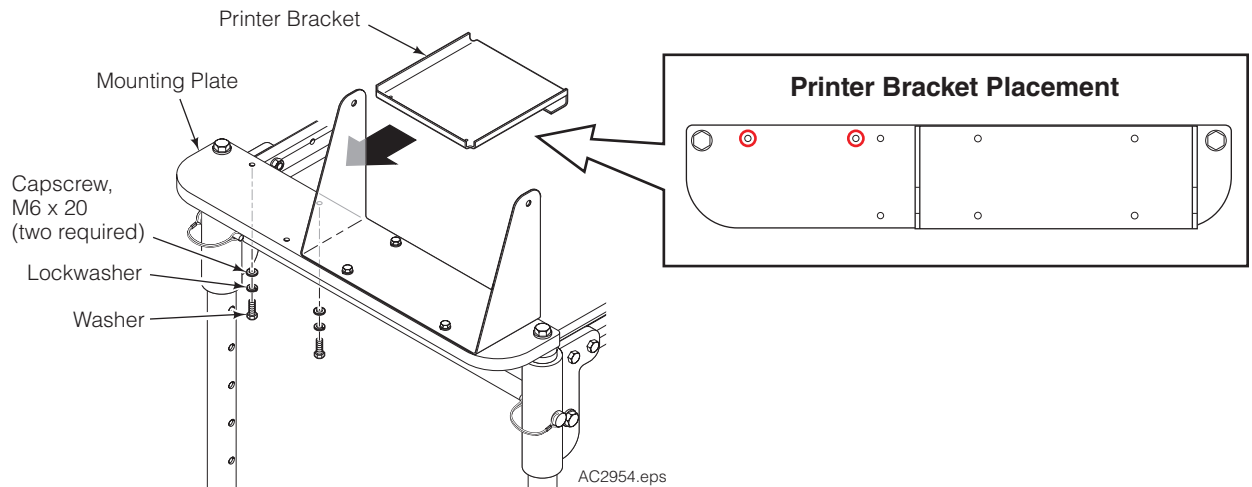
- A** Determine a location to secure the gauge to the trolley that will not interfere with the spindle pads contacting the attachment pads.
- B** Cut ties with additional length to secure loop side of cable to hook side on each side of the buckle. Cut quantity as required to secure the gauge.
- C** Loop the tie around the ends of each buckle while securing the gauge to trolley.



19 If equipped, install printer bracket to the mounting plate

A Slide the printer bracket onto the mounting plate. Align the printer bracket holes with the mounting plate holes.

B Install hardware.



20 If equipped, install the printer

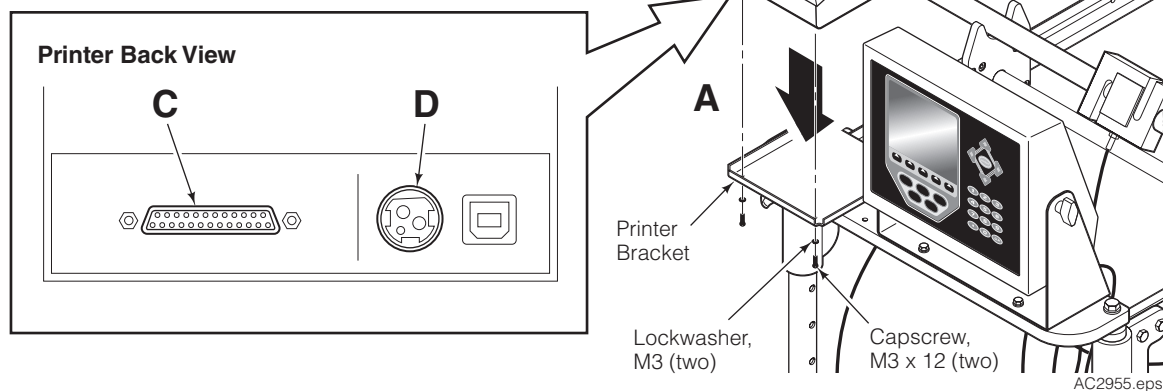
A Place the printer on printer bracket.

B Install hardware to secure printer to the bracket.

C Plug the display's printer cable into the printer terminal. Tighten the connector screws.

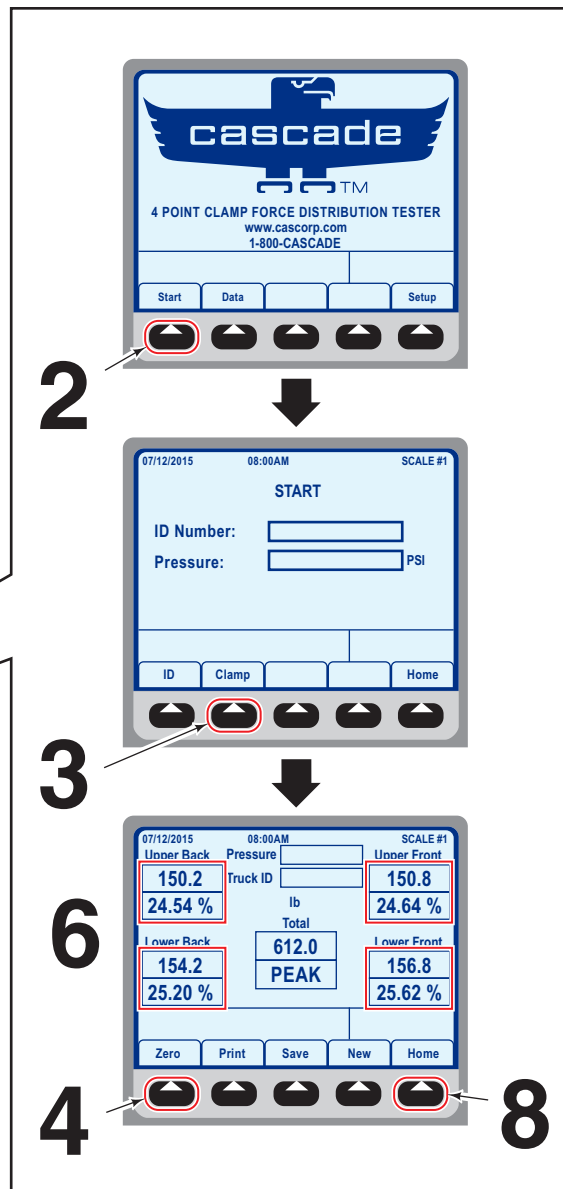
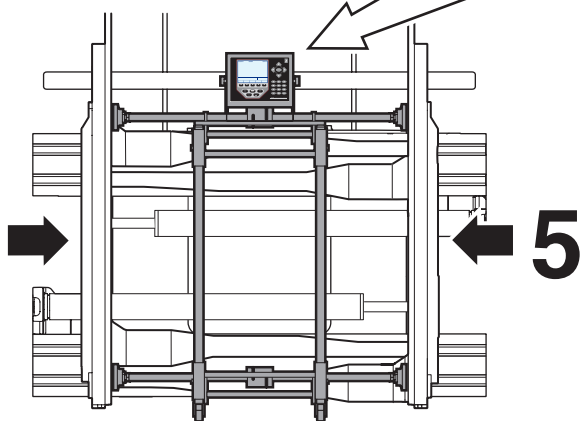
D Plug the printer power supply connector into the printer power terminal.

E Secure extra cord length with provided hook and loop small tie(s).



Quick System Check

- 1 Plug the display's power connector into a 120V power source.
- 2 Once the display shows the Home screen, press the button under "Start" menu option.
- 3 Then press the button under "Clamp" menu option.
- 4 Once the display shows the Clamp screen, press the button on the "Zero" menu option.
- 5 Clamp on the trolley's spindle pads.
- 6 The display should show four clamp force values and four percentages. The display is working properly.
- 7 Release and OPEN the clamp arms.
- 8 Press the button under the "Home" menu option.

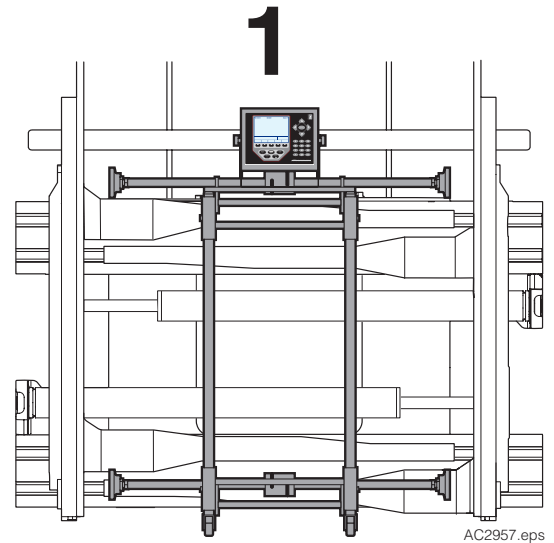


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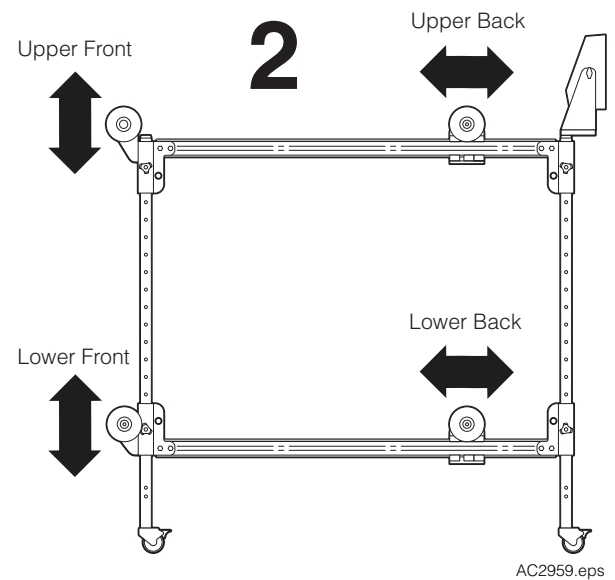
Adjust Spindle Supports

IMPORTANT: Perform this procedure with the aid of a Cascade sales representative to determine the optimal location of spindle pads for proper clamp force distribution.

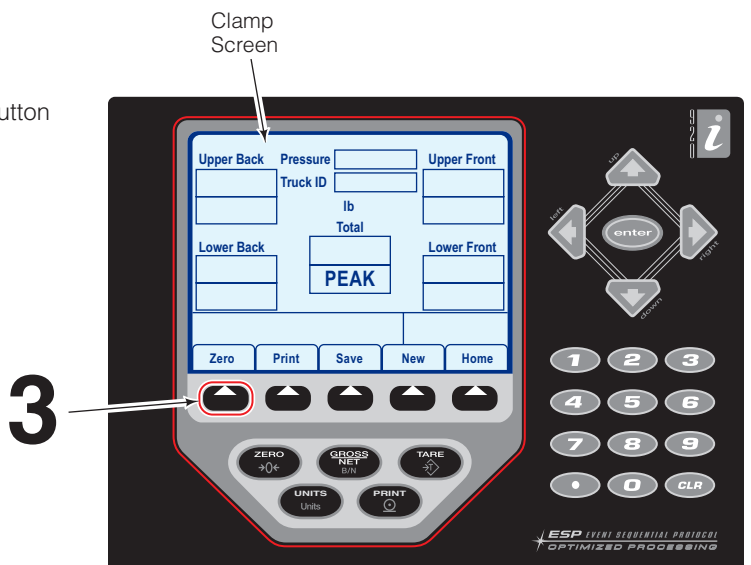
- 1 Position the trolley between the carton clamp contact pad.



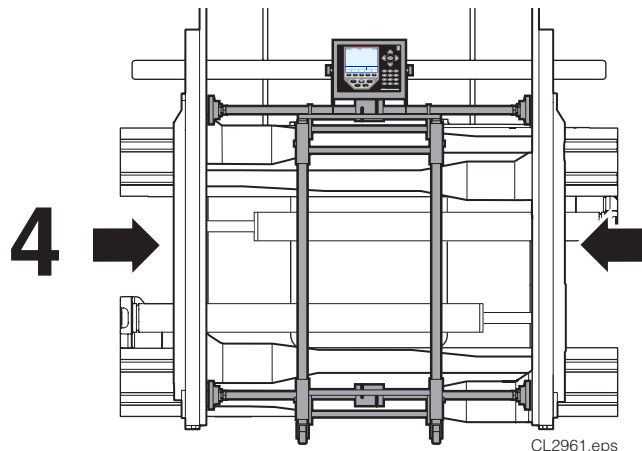
- 2 If required, adjust the supports to align the spindle pads to four locations on each of the carton clamp contact pads. The four locations on the contact pad, are determined by the type of products being handled. Contact a Cascade sales representative to determine optimal pad and spindle positioning.



- 3 From the *Clamp screen* on the display, press the button on the "Zero" menu option.



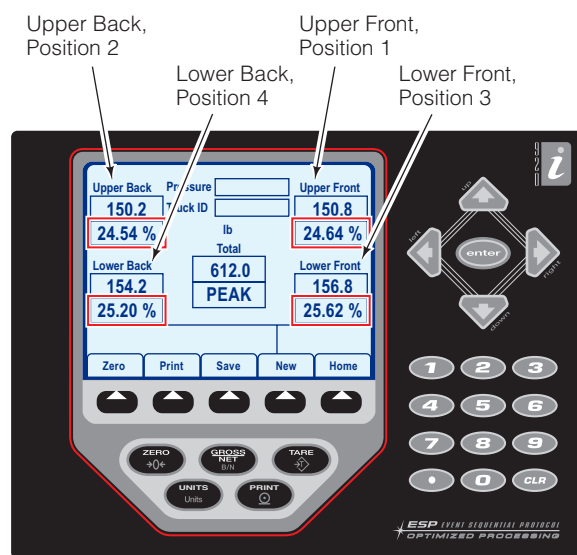
4 Clamp on the trolley's spindle pads.



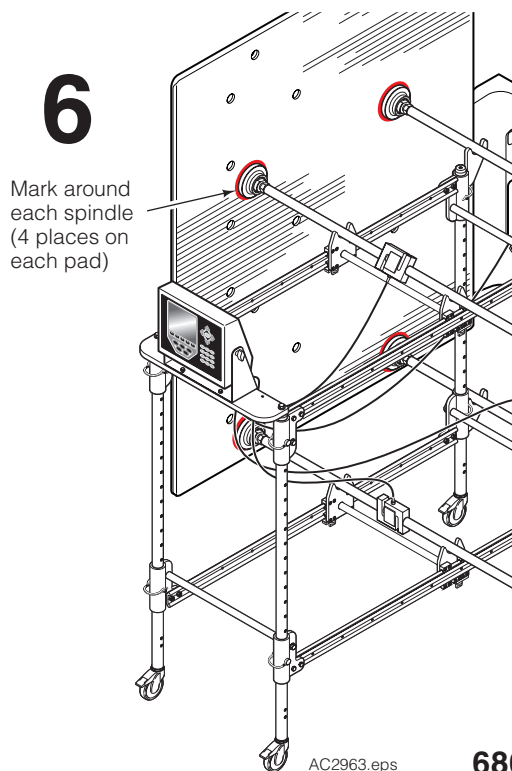
5 Refer to the display's four percentages. Verify that the clamp force distribution is within the desired percentages and tolerances.

If the tolerance difference is greater than allowable tolerance difference, the carton clamp pads require shimming. Refer to installation instructions for the carton clamp to shim:

- D-Series Carton Clamp Installation Instructions, Part No. 670488
- G-Series Carton Clamp Installation Instructions, Part No. 6871032



6 Use a contrasting permanent marking device to outline each spindle pad the contact pads.



M EASURING CLAMP FORCE

The following section covers the general procedure for measuring the clamp force of a carton clamp attachment. For further details on a specific step of the procedure, refer to Display Configuration section, page 15-20. There are two methods of measuring, **peak** clamp force (procedure below) or **live** clamp force (procedure on the following page). Peak force is the highest clamp force measured. While in peak mode, the percentage distribution will also show. Live force is the real time clamp force measured.

Measure Peak Clamp Force

Peak Force is the maximum measured force applied to the spindles. Also, the display will show the distribution of the force applied to each spindle's load cell.

1 Align the attachment pads with the trolley spindle pads.

2 From the *Home Screen*, press the button under "Start" menu option.

3 If required, enter the truck identification and pressure in the *ID screen*. Refer to *Display Operation*, "Start Screen" for details, page 17.

4 Press the menu selection button under "Clamp" menu option.

5 Verify that the screen shows "PEAK". Refer to page 17, Step 2 to toggle between "PEAK" and "LIVE".

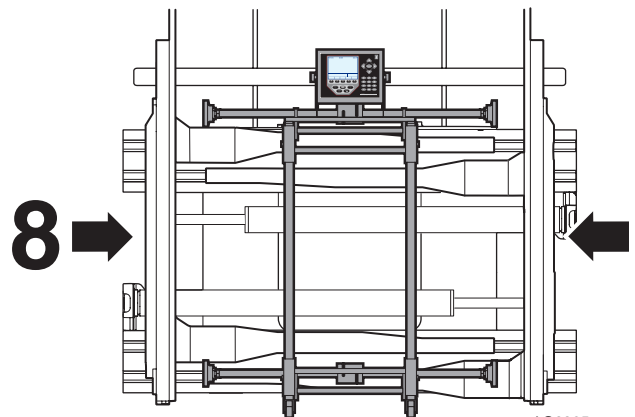
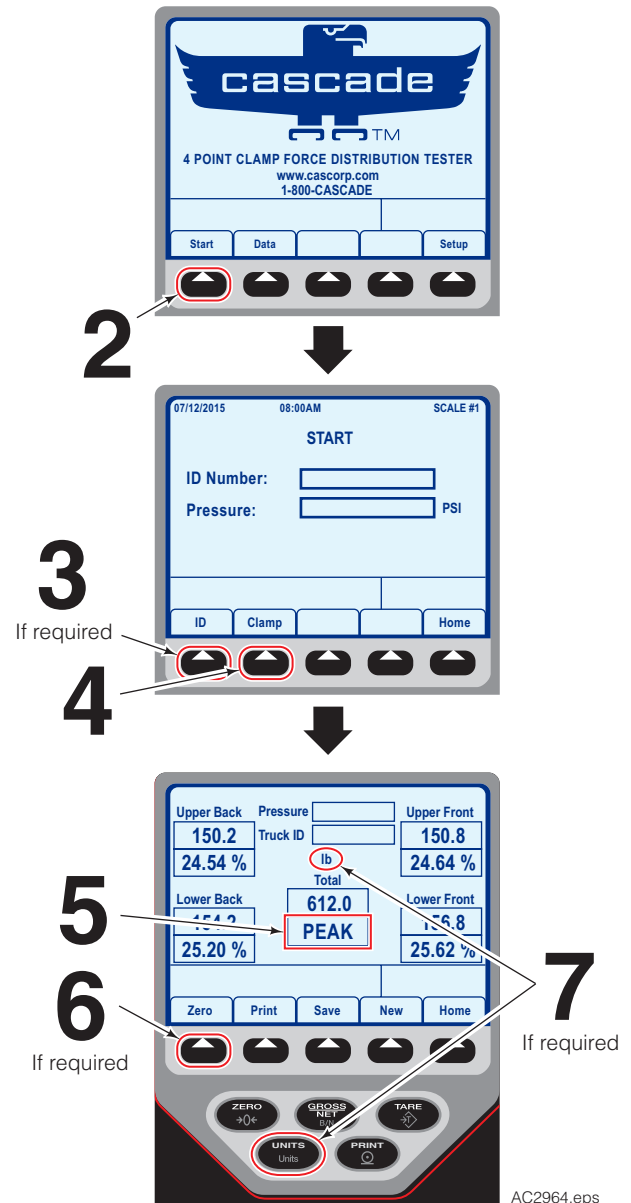
6 If required, zero the loads cells.

7 If required, change the units, lb_f (pounds-force) or N (newtons). Refer to *Display Operation*, "Start Screen" for details, page 17.

8 Clamp on the spindle pads. The display will show force values and clamp force distribution percentages.

9 Release the spindle pads.

10 Information shown on the display can be saved and/or printed. Refer to *Display Operation*, "Start Screen" for details, page 17.



M MEASURING CLAMP FORCE

Measure Live Clamp Force

Live clamp force is the real time (current moment in time) measured force applied to the spindles.

IMPORTANT: When measuring clamp force in "LIVE" mode, the data can not be saved or printed.

1 Align the attachment pads with the trolley spindle pads.

2 From the *Home Screen*, press the button under "Start" menu option.

3 Press the button under "Clamp" menu option.

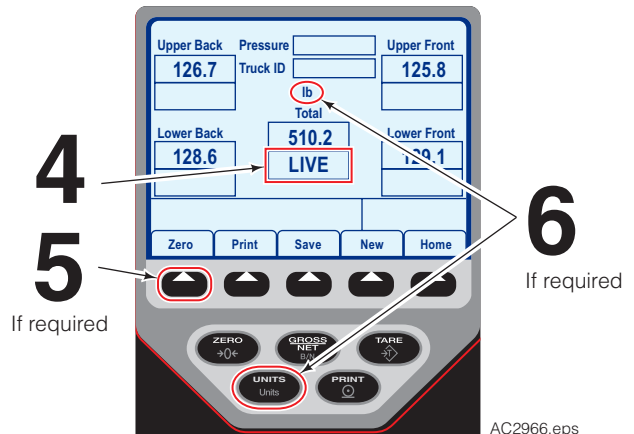
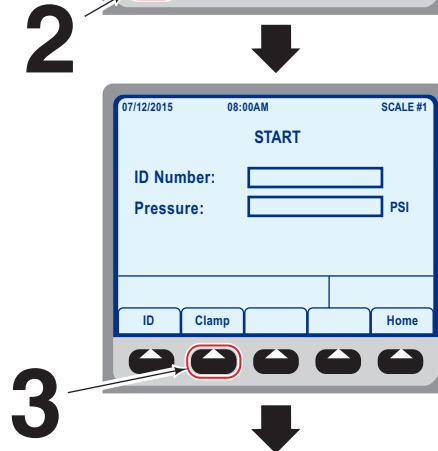
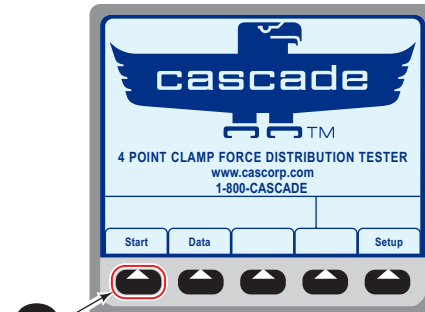
4 Verify that the screen shows "LIVE". Refer to page 17, Step 2 to toggle between "PEAK" and "LIVE".

5 If required, zero the loads cells.

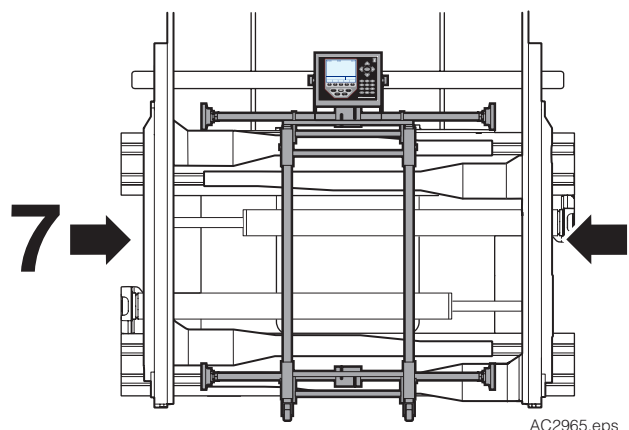
6 If required, change the units, lb_f (pounds-force) or N (newtons). Refer to *Display Operation*, "Start Screen" for details, page 17.

7 Clamp on the spindle pads. The display will show force values. Clamp force for each spindle and clamp force will show on the display.

8 Release the spindle pads.



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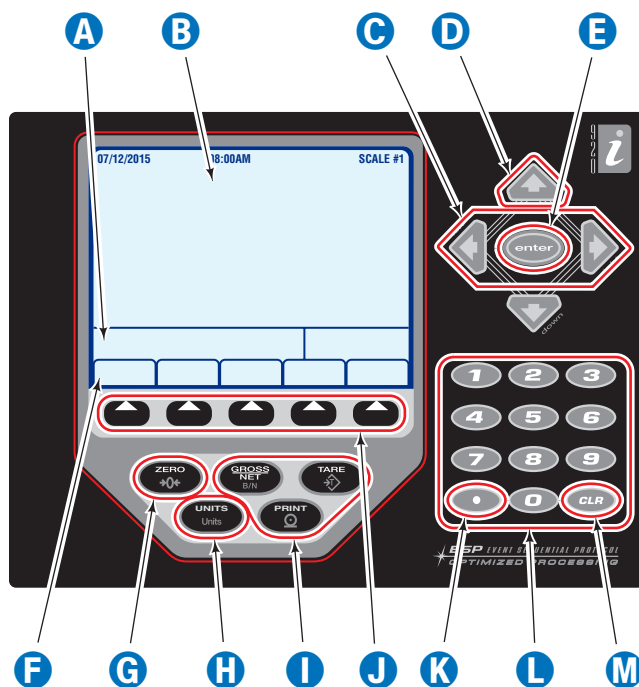
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DISPLAY CONFIGURATION

Display Buttons

The following is the basic layout of the display for reference:

- A** Entry Text Box
- B** Display Screen
- C** Left and right arrows toggle between PEAK and LIVE (Clamp Screen)
- D** Accesses Character Menu Box
- E** Enter button – Accepts a value
- F** Menu Options
- G** Zeros clamp force (Clamp Screen)
- H** Toggle between units – Imperial and Metric
- I** **NOTE:** Buttons are not functional
- J** Buttons for selecting menu options
- K** Decimal button
- L** Numeric buttons
- M** CLR button – backspace when changing a value



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Accessing the Home Screen

- 1 Plug the power cord on the display into a 120V power source.

NOTE: If equipped with printer, plug the printer's power cord into a power source.

- 2 Wait for the screen to load to the *Home screen*.
- 3 The *Home screen* will show. Press a menu option button:
 - Start (**A**) – Goes to the *Start screen*. This screen is for obtaining clamp force values. Refer to page 17.

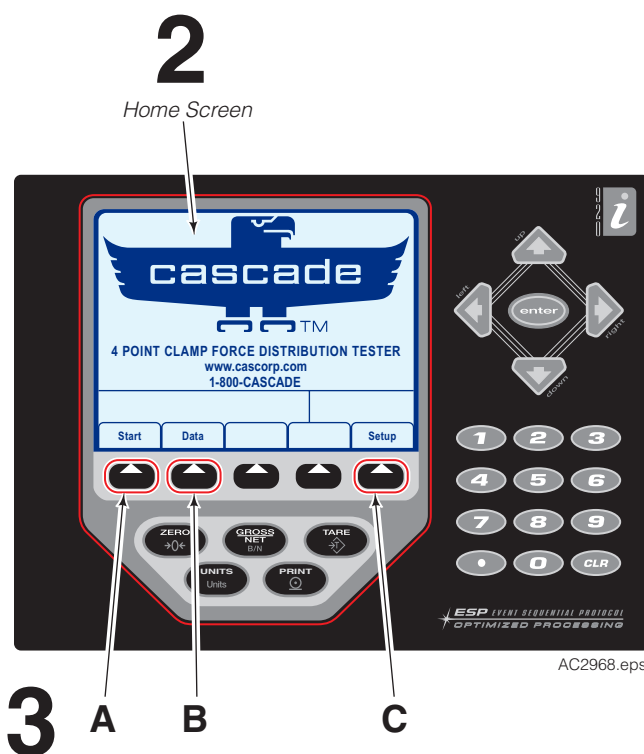
OR

 - Data (**B**) – Goes to the *Data screen*. This screen allows the user to view data stored or download stored data. Refer to page 18.

OR

 - Setup (**C**) – Goes to the *Setup screen*. This screen has options for changing data/time, create/change password, change the screen's contrast and adjust the threshold force value. Refer to page 19.

NOTE: Refer to the following page for the display's layout.



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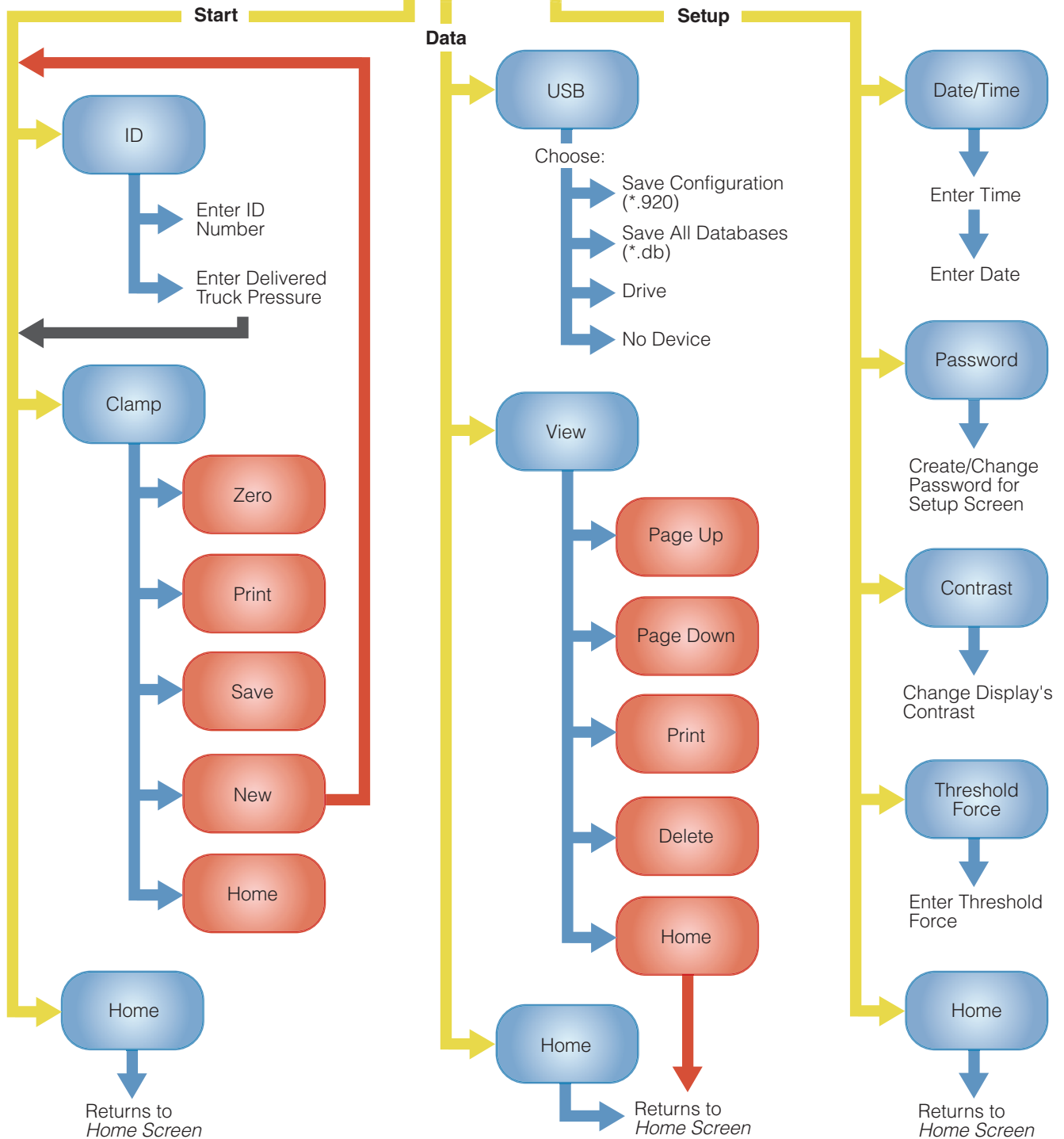
DISPLAY CONFIGURATION

Navigation Tree

From the home screen (shown), pressing one of the buttons, will go to following screens:

NOTE: For detailed information, refer to the following pages.

Home Screen



D ISPLAY CONFIGURATION

Start Screen

After the "Start" menu option button is pressed, the *Start screen* will show. From the *Start screen*:

- 1 When the "ID" menu option button is pressed, the screen goes to the *ID screen*. The screen will prompt:

A Enter the truck identification To enter the truck identification, use the numeric buttons and character menu box. To accept the truck identification, press the "enter" button.

NOTE: Refer to *Appendix*, "Letters and Special Characters", page 26 for more detail.

B Enter the pressure value. Use the numeric buttons to enter a value. To accept the value, press the "enter" button.

C The screen will then return to the *Start screen*.

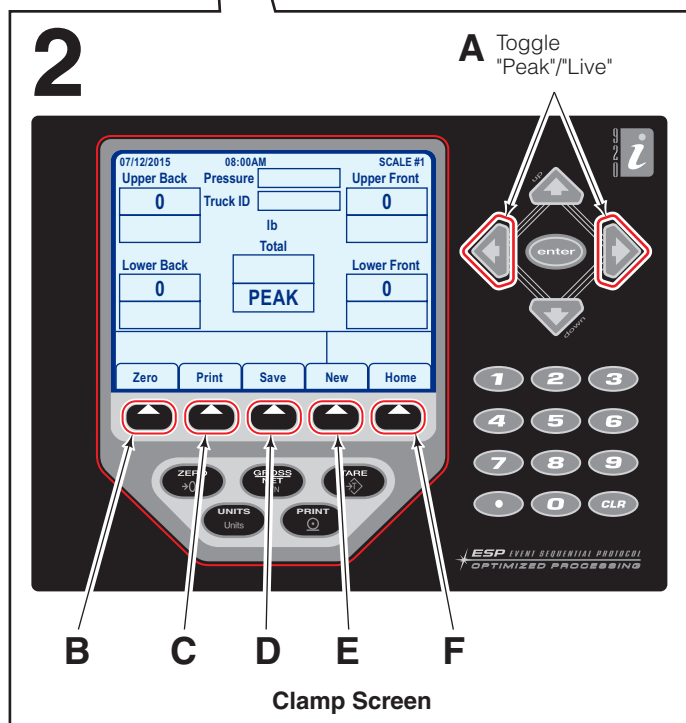
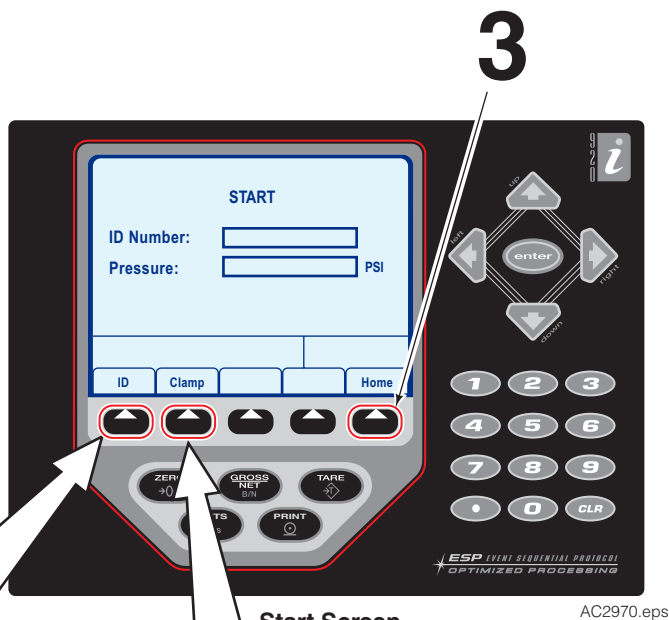
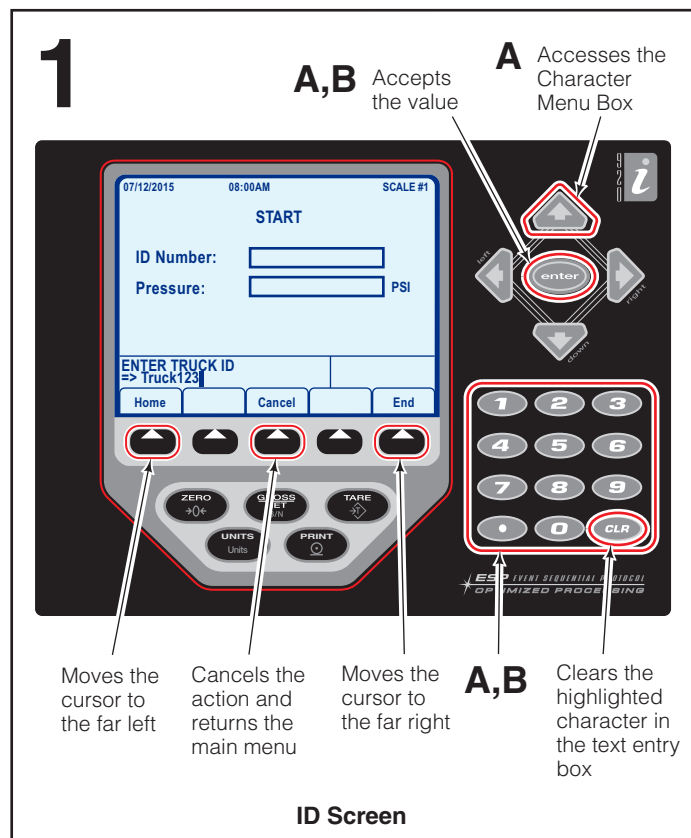
- 2 When the "Clamp" menu option button is pressed, the screen goes to the *Clamp screen*. The following options are available:

- Use the left and right arrow button to toggle between "Peak" and "Live". (**A**)
- "Zero" menu option button (**B**)– Zeroes residual or unladen force values appearing on the display prior to clamping.
- "Print" menu option button (**C**)– If equipped with the printer, the data will print out. The ticket will list the truck identification, pressure, peak clamp forces for each load cell, total clamp force, date and time.

- 2 (continued)

- "Save" menu option button (**D**) – The peak value is saved to the display's internal memory.
- "New" menu option button (**E**) – Returns to the *Start screen*.
- "Home" menu option button (**F**) – Returns to the *Home screen*.

- 3 When the "Home" menu option button is pressed, the screen returns to the *Home screen*.



Data Screen

All clamp force data is stored in a database table format and can be downloaded to a USB flash drive. Data can also be viewed on the display screen.

IMPORTANT: Prior to pressing the "USB" menu option button, install a USB flash drive into the display's USB port.

After the "Data" menu option button is pressed, the *Data screen* will show. From the *Data screen*:

1 When the "USB" menu option button is pressed, the screen goes to the *USB screen*. The screen will prompt:

NOTE: If a USB flash drive is not installed, the text entry box will show, "No Device available".

A Use the arrow buttons to highlight "Save All Databases (*.db)".

B Press the "enter" button to save the database files to the USB flash drive.

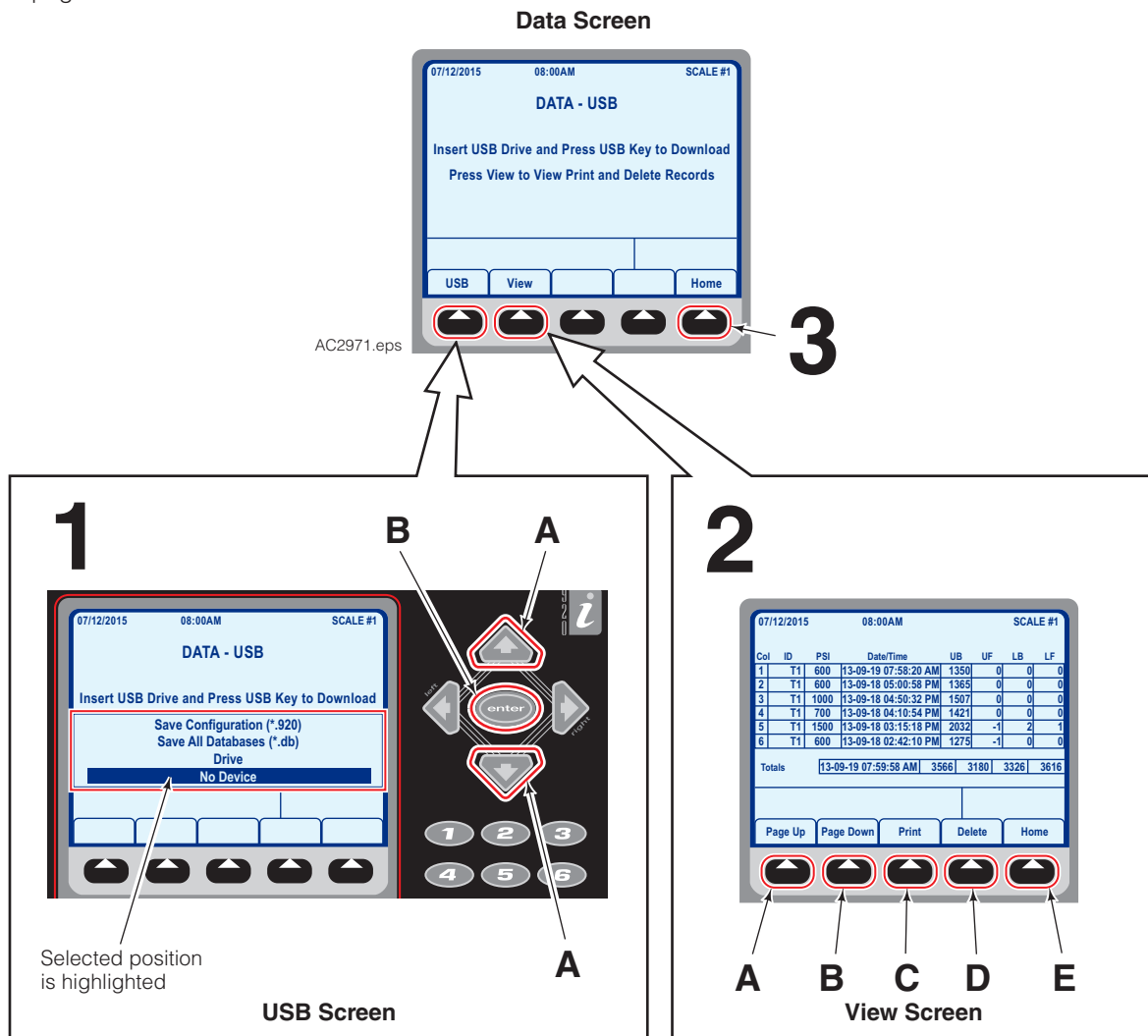
2 When the "View" menu option button is pressed, the screen goes to the *View screen*. The following options are available:

- "Page Up" menu option button (**A**) – The previous table page will show.
- "Page Down" menu option button (**B**) – The next table page will show.

2 (continued)

- "Print" menu option button (**C**) – Allows for one row to be printed. The screen will prompt for the row number. Press the "enter" button to accept entered row number and create the printout.
- "Delete" menu option button (**D**) – Deletes all data stored in the table.
- "Home" menu option button (**E**) – Returns to the *Home screen*.

3 When the "Home" menu option button is pressed, the screen returns to the *Home screen*.



DISPLAY CONFIGURATION

Setup Screen

The *Setup Screen* contains five menu options. Four options change the following settings: Date and time, password enabled *Setup screen*, screen contrast and threshold force. The fifth option returns to the *Home screen*.

After the "Setup" menu option button is pressed, the *Setup screen* will show. From the *Setup screen*:

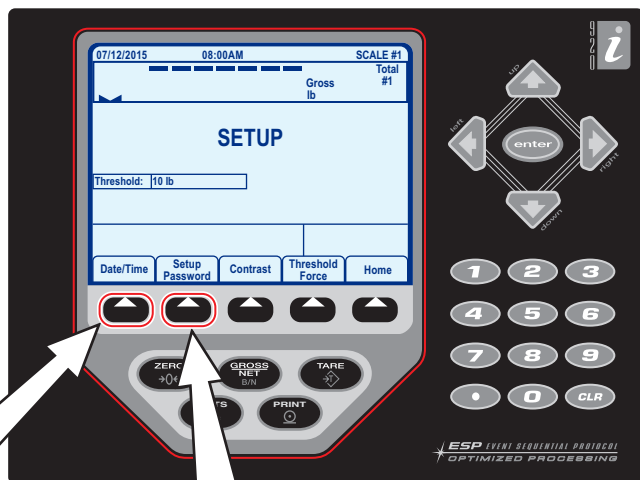
- 1 When the "Date/Time" menu option button is pressed, the following steps will show in the text entry box:
 - A Use the numeric buttons to change the time, in HHMMSS format.
 - B To accept the time value, press the "enter" button.
 - C Use the numeric buttons to change the date, in MMDDYY format.
 - D To accept the date value, press the "enter" button.
 - E The screen returns to the main *Setup screen*.
- 2 When the "Password" menu option button is pressed, the following steps will show in the text entry box:
 - A To create/change the password. Use the numeric buttons and character menu box.

NOTE: Refer to *Appendix, "Letters and Special Characters"*, page 26 for more detail.

 - B To accept the new/changed password, press the "enter" button.
 - C The screen returns to the main *Setup screen*.

Button Menu Options continued on the next page

Setup Screen



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1

Text Entry Box

A,C



Moves the cursor to the far left

Cancels the action and returns to main menu

Moves the cursor to the far right

B,D Clears the highlighted character in the text entry box

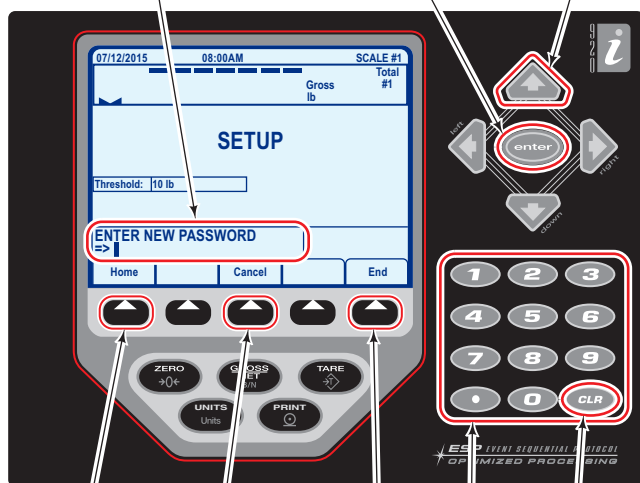
Setup Screen - Change Date/Time

2

Text Entry Box

B Accepts the value

A Accesses the Character Menu Box



Moves the cursor to the far left

Cancels the action and returns to main menu

Moves the cursor to the far right

A Clears the highlighted character in the text entry box

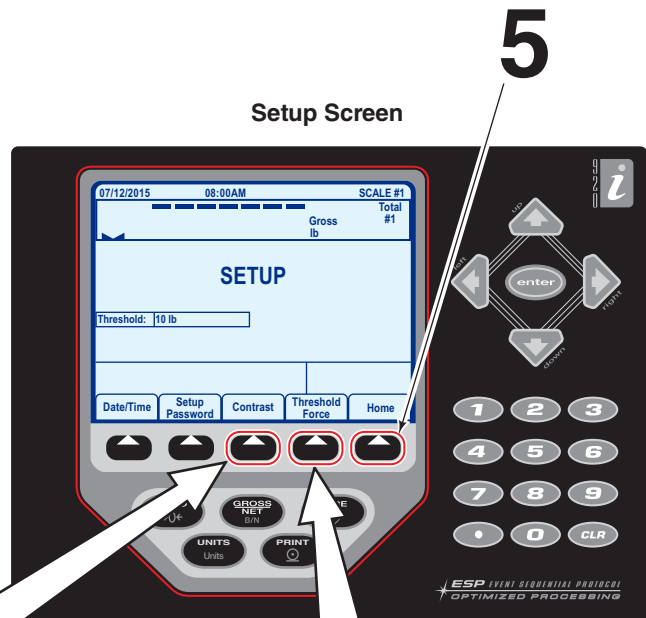
Setup Screen - Change Password

DISPLAY CONFIGURATION

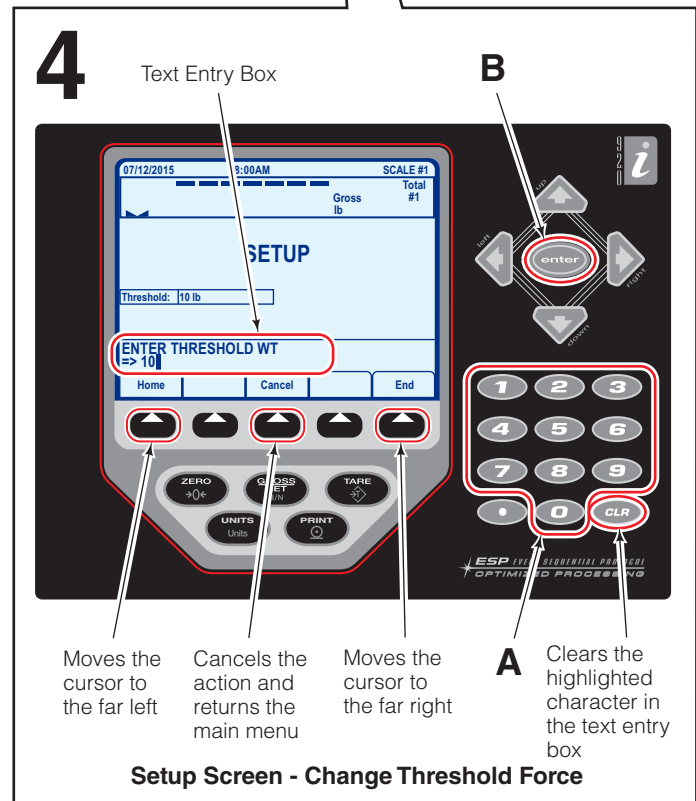
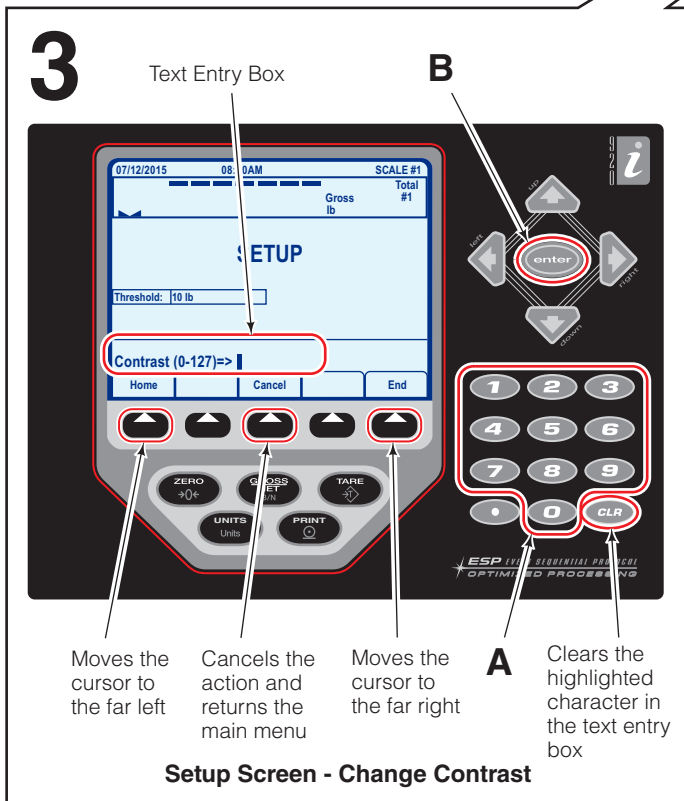
Setup Screen (continued)

After the "Setup" menu option button is pressed, the *Setup* screen will show. From the *Setup* screen:

- 3 When the "Contrast" menu option button is pressed, the screen will prompt:
 - A Use the numeric buttons to enter a value within the range of 0 to 127.
 - B To accept the contrast value, press the "enter" button.
 - C The screen returns to the main *Setup* screen.
- 4 When the "Threshold Force" menu option button is pressed, the screen will prompt:
 - A Use the numeric buttons to change the Threshold Force value. This is the minimal value that will produce a response when a force is being applied to the spindles. The default value is set to 10.
 - B To accept the threshold force value, press the "enter" button.
 - C The screen returns to the main *Setup* screen.
- 5 When the "Home" menu option button is pressed, the screen returns to the *Home* screen.



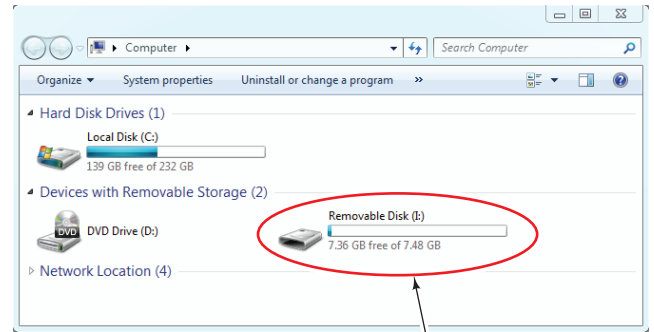
AC2973.eps



The original file saved to the USB flash drive is a database file (file extension: ".DB"). If a database program is not available to view, the file can be opened by performing the following procedure.

NOTE: The following procedure uses Excel 2010. Other similar software may have a different procedure than the one shown below.

- 1 Plug the USB flash drive into a computer USB port. Navigate to the root directory (top level) of the USB flash drive.

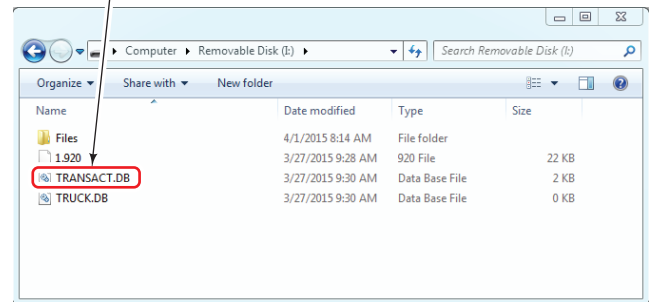


2

1

- 2 Locate the file called "TRANSACTION.DB". Create a copy of the file on the USB flash drive or to a specified file location.

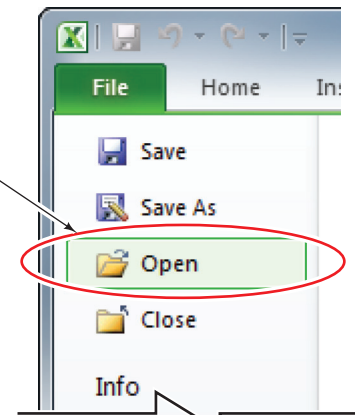
- 3 Change the copied file's file extension from "DB" to "txt". Example: TRANSACTION.DB becomes TRANSACTION.txt



- 4 Launch Excel software.

- 5 In the Excel menu, choose "File" and then "Open".

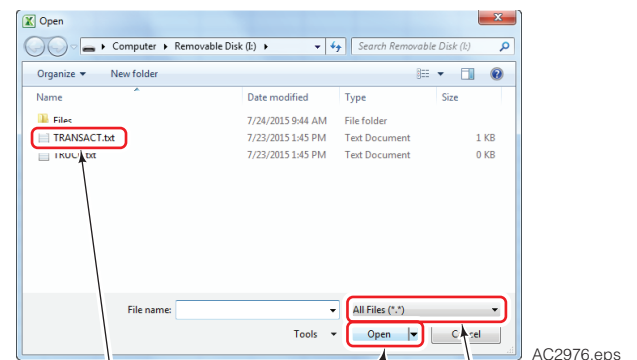
5



- 6 In the "Open" dialog box, change the filter to "All Files (*.*)".

- 7 Choose the file "TRANSACTION.txt" from the file location the file was copied to (Step 2).

- 8 Click the "Open" button.



7

8

6

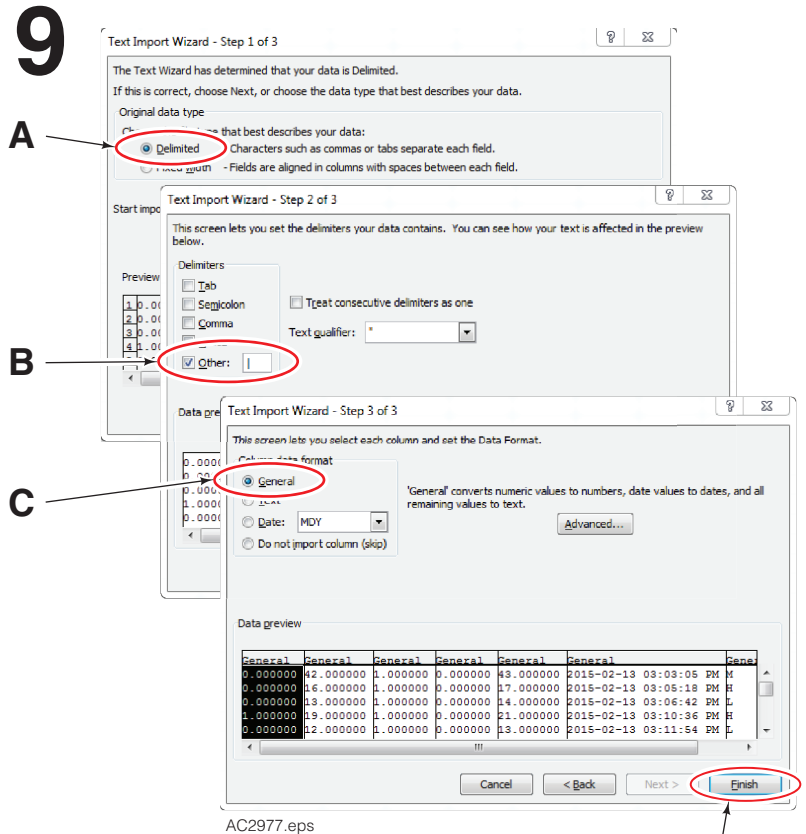
9 A "Text Important Wizard" dialog box will appear. Verify that the following options are selected:

A Original Data Type: Delimited

B Delimiters: check "Other", add "|" in the text box next to the check box.

NOTE: The character "|" (vertical bar), can be found on the keyboard above the backslash (reverse solidus). To add the character press the "shift" key + "\" key.

C Column Data Format: "General"



10

10 Choose the "Finish" button. The file will open.

11 Save the file as an Excel document (file type ".xlsx").

12 The file is ready to review.

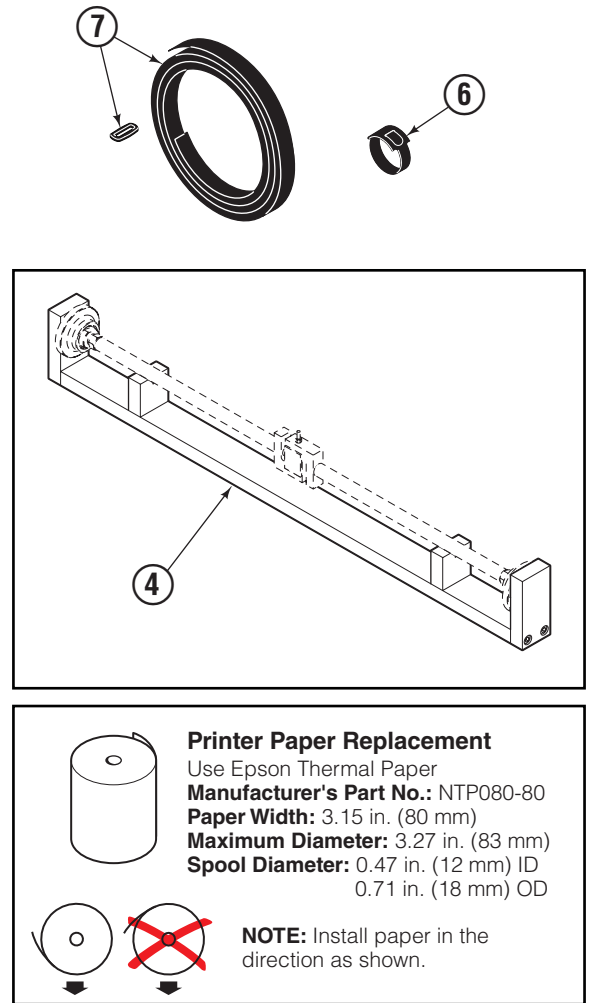
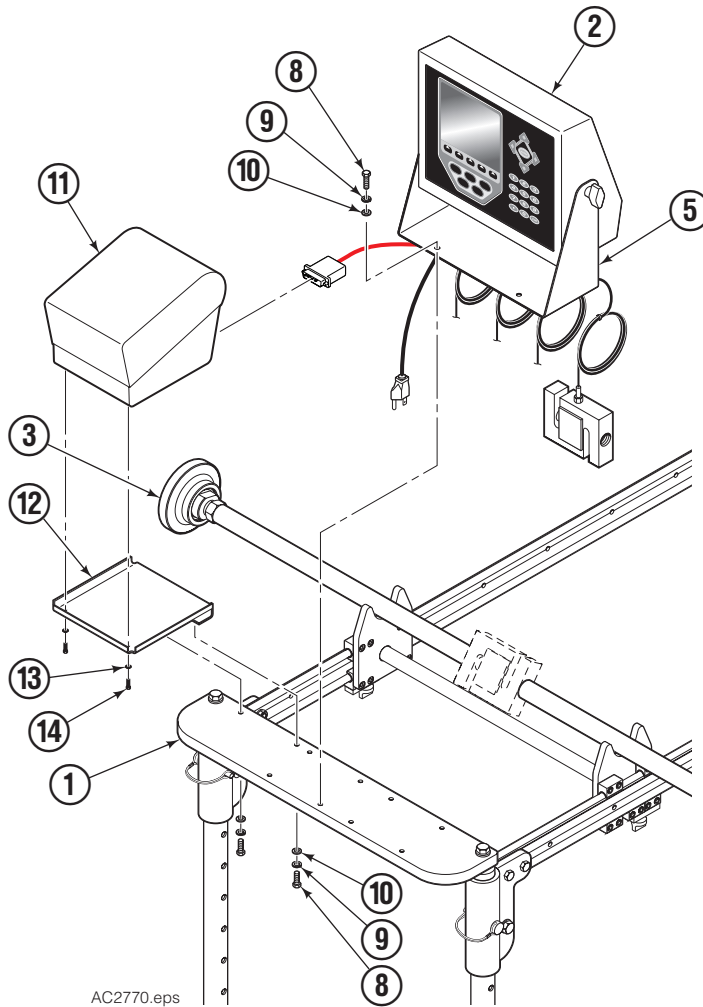
- A** Upper Back (Position 1)
- B** Upper Front (Position 2)
- C** Lower Back (Position 3)
- D** Lower Front (Position 4)
- E** Total
- F** Date and Time
- G** Pressure Type
- H** Truck ID

12

	A	B	C	D	E	F	G	H
1	150	151	155	156	612	2/13/2015 15:03 M	T01	
2	225	227	220	221	893	2/13/2015 15:05 H	T01	
3	90	95	99	100	384	2/13/2015 15:06 L	T01	
4	300	310	280	285	1175	2/13/2015 15:10 H	T03	
5	200	201	210	212	823	2/13/2015 15:11 L	T03	
6	110	115	98	95	418	2/13/2015 15:12 L	T09	
7	65	70	90	91	316	2/13/2015 15:13 L	T02	
8	150	155	170	173	648	2/13/2015 15:14 M	T02	
9	350	352	375	370	1447	2/13/2015 15:15 H	T02	

AC2978.eps

4-Point Force Distribution Tester

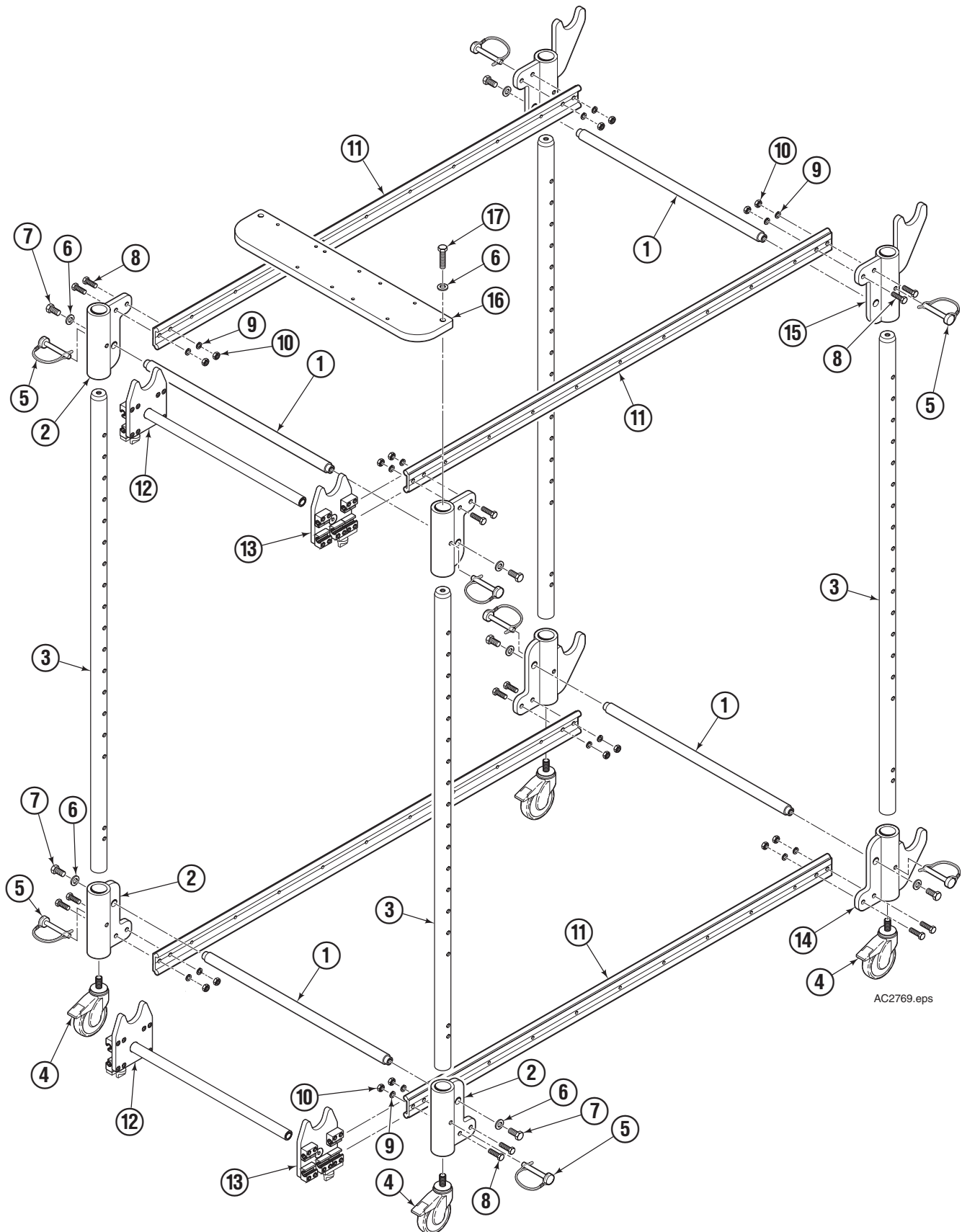


REF	QTY	PART NO.	DESCRIPTION	REF	QTY	PART NO.	DESCRIPTION
		6841756	4-Point Force Distribution Tester ♦	7	■	6868083	Large Tie, Hook and Loop Kit B
		6859239	Printer and Mounting Group ▲	8	■	763169	Capscrew, M6 x 20
1	1	6841757	Trolley Assembly ●	9	■	206323	Lockwasher, M6
2	1	6841983	Display ▼	10	■	202346	Washer, M6
3	4	6854155	Spindle/Pad Assembly	11	1	6842181	Printer
4	1	6842112	Gauge	12	1	6842218	Printer Bracket
5	1	6841986	Display Bracket	13	2	6406230	Washer, M3
6	■	6842210	Small Tie Set, Hook and Loop A	14	2	680215	Capscrew, M3 x 12

- ♦ Includes items 1–10.
- ▲ Includes items 8–14.
- See Trolley Assembly page for parts breakdown.
- ▼ Includes items 5 and 6.
- Quantity as required.

- A Each set contains 10 small ties.
- B Each kit contains 15 ft. (4.5 m) of hook and loop tie and 10 buckles. The kit makes 8 to 10 ties.

Trolley Assembly



AC2769.eps

Trolley Assembly

REF	QTY	PART NO.	DESCRIPTION
		6841757	Trolley Assembly
1	4	6524444	Spacer Bar
2	4	6846552	Back Support
3	4	6841206	Vertical Bar
4	4	6524033	Castor Wheel
5	8	6868629	Pin
6	10	206322	Washer, M10
7	8	684594	Capscrew, M10 x 20
8	16	787373	Capscrew, M8 x 25
9	16	787384	Washer, M8
10	16	767414	Nut, M8
11	4	6524473	Guide
12	2	6841809	Sliding Support with Spacer Bar
13	2	6524355	Sliding Support
14	2	6846616	Front Lower Support
15	2	6846617	Front Upper Support
16	1	6841914	Mounting Plate
17	2	787374	Capscrew, M10 x 40

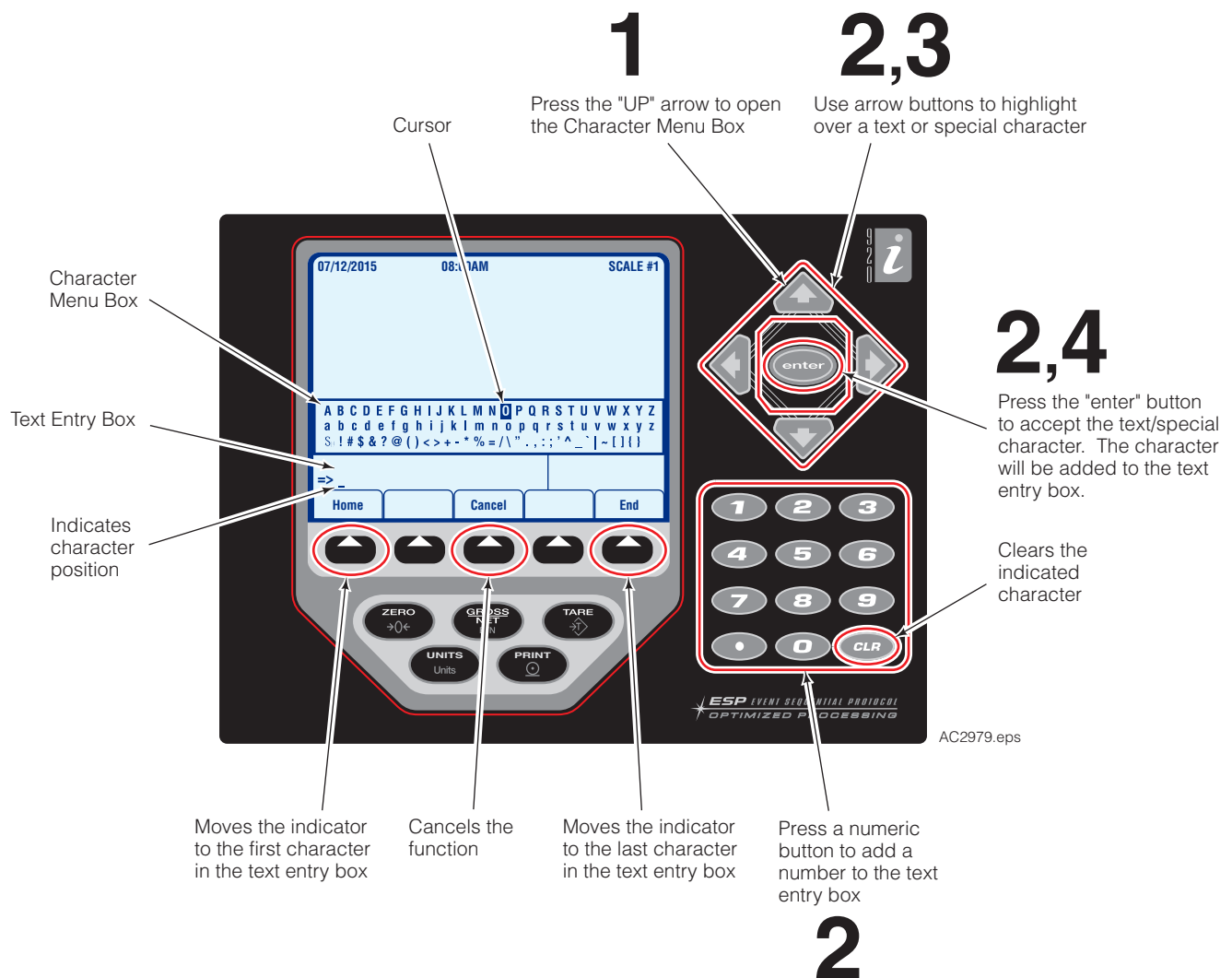
Letters and Special Characters

Refer to the following when text, special characters or numbers are required.

- 1 When text or special character(s) is required, press the "Up" arrow button to open the Character Menu Box.
- 2 For each character position:
 - Press a numeric button
 - OR**
 - Use the arrow buttons to move the cursor to highlight a letter or special character and then press the "enter" button.
- 3 When finished with entering numbers, letters and/or special characters, use the arrow buttons to move the cursor into the text entry box.

NOTE: Always verify that the cursor is **not** in the character menu box. Pressing the "enter" button will add the highlighted character to the text entry box rather than accepting the entered text.

- 4 Press the "enter" button to accept the value.



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Do you have questions you need

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AMERICAS

**Cascade Corporation
U.S. Headquarters**

2201 NE 201st
Fairview, OR 97024-9718
Tel: 800-CASCADE (227-2233)
Fax: 888-329-8207

Cascade Canada Inc.

5570 Timberlea Blvd.
Mississauga, Ontario
Canada L4W-4M6
Tel: 905-629-7777
Fax: 905-629-7785

Cascade do Brasil

Praça Salvador Rosa,
131/141-Jordanópolis,
São Bernardo do Campo - SP
CEP 09891-430
Tel: 55-13-2105-8800
Fax: 55-13-2105-8899

EUROPE-AFRICA

**Cascade Italia S.R.L.
European Headquarters**

Via Dell'Artigianato 1
37030 Vago di Lavagno (VR)
Italy
Tel: 39-045-8989111
Fax: 39-045-8989160

Cascade (Africa) Pty. Ltd.

PO Box 625, Isando 1600
60A Steel Road
Sparton, Kempton Park
South Africa
Tel: 27-11-975-9240
Fax: 27-11-394-1147

ASIA-PACIFIC

Cascade Japan Ltd.

2-23, 2-Chome,
Kukuchi Nishimachi
Amagasaki, Hyogo
Japan, 661-0978
Tel: 81-6-6420-9771
Fax: 81-6-6420-9777

Cascade Korea

121B 9L Namdong Ind.
Complex, 691-8 Gojan-Dong
Namdong-Ku
Inchon, Korea
Tel: +82-32-821-2051
Fax: +82-32-821-2055

Cascade-Xiamen

No. 668 Yangguang Rd.
Xinyang Industrial Zone
Haicang, Xiamen City
Fujian Province
P.R. China 361026
Tel: 86-592-651-2500
Fax: 86-592-651-2571

**Cascade India Material
Handling Private Limited**

No 34, Global Trade Centre
1/1 Rambaugh Colony
Lal Bahadur Shastri Road,
Navi Peth, Pune 411 030
(Maharashtra) India
Phone: +91 020 2432 5490
Fax: +91 020 2433 0881

Cascade Australia Pty. Ltd.

1445 Ipswich Road
Rocklea, QLD 4107
Australia
Tel: 1-800-227-223
Fax: +61 7 3373-7333

Cascade New Zealand

15 Ra Ora Drive
East Tamaki, Auckland
New Zealand
Tel: +64-9-273-9136
Fax: +64-9-273-9137

**Sunstream Industries
Pte. Ltd.**

18 Tuas South Street 5
Singapore 637796
Tel: +65-6795-7555
Fax: +65-6863-1368

