



Instruction Manual

1200 Series Portable Utility Scale with Rechargeable Battery-Powered FB1200 Resin Alloy Instrument





Disclaimer

Every effort has been made to provide complete and accurate information in this manual. However, although this manual may include a specifically identified warranty notice for the product, Fairbanks Scales makes no representations or warranties with respect to the contents of this manual and reserves the right to make changes to this manual without notice when and as improvements are made.

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Amendment Record

1200 Series Portable Utility Scale with Rechargeable Battery-Powered FB1200 Resin Alloy Instrument

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Section 1: Introduction

The 1200 Series scale is a combination of a roll-around cast-iron base and a Battery/AC-powered digital indicator. The resulting scale is durable, movable, and provides an easy-to-read, accurate weight display. This manual provides information on assembly and setup for the 1200 Series Scale.

NOTE: Please read this manual carefully before assembling the scale.

A. The scale is factory calibrated and supplied ready to be assembled and used.

Adjustments to the weighing accuracy should only be made by trained scale personnel. No modifications are to be made to this equipment.

B. Upon receipt, ensure that no shipping damage has occurred. If damage has occurred, please follow the procedures below:

- Damage to the shipping carton must be noted by the receiving party.
- Damage must be made known to the shipper.
- Claims for shipping damage are made by the receiving party to the shipper.

C. It is the customer or owner's responsibility to maintain the scale in good operating condition, and to protect the scale from accidental damage.

D. Specifications:

Capacity	1000 lbs. x 0.2 lbs.
Display	2.0" tall, 9-segment, 6-digit, inverted LCD display with selectable backlight
Enclosure	NEMA 4 Resin Alloy
Push-button keys	On/Off, Units, Zero, B/G Net, Tare, Print, F1
Units	lbs, kg, oz, g, ton, tonne, custom.
Serial interface	Serial 1: Bidirectional RS232/transmit-only 20mA Serial 2: Bidirectional RS232/transmit-only RS485
Power	100 VAC to 130 VAC, 50Hz\ 60Hz 200 VAC to 260 VAC, 50Hz\ 60Hz
Battery type /life	Li-ion rechargeable / 34 hours continuous; 5 hour recharge time
Platform construction	Rugged cast iron
NTEP (CC) number	92-110
MC number	AM 5745

Section 2: Service Policy Information

2.1 General Service Policy

Prior to installation, *always* verify that the equipment satisfies the customer's requirements as supplied, and as described in this manual.



If the equipment cannot satisfy the application and the application cannot be modified to meet the design parameters of the equipment, **the installation should NOT be attempted.**

It is **the customer/operator's responsibility** to ensure the equipment provided by Fairbanks is operated within the parameters of the equipment's specifications and protected from accidental or malicious damage.

WARNING!

Absolutely NO physical, electrical or program **modifications** other than selection of standard options and accessories can be made by customers to this equipment

Repairs are performed by Fairbanks Scales Service Technicians and Authorized Distributor Personnel ONLY!

Failure to comply with this policy voids all implied and/or written warranties.

2.2 Conferring with Our Client

- The technician must be prepared to recommend the arrangement of components which provides the most efficient layout, utilizing the equipment to the best possible advantage.
- Explain and review the warranty policy with the customer.

The installing technician is responsible that all personnel are fully trained and familiar with the equipment's capabilities and limitations before the installation is considered complete.

- All electrical assemblies must be returned intact for replacement credit using the standard procedures.
- At the time of installation, all electronic and mechanical adjustments are considered to be part of the installation and are included in the installation charge(s).
- The AC receptacle/outlet shall be located near the Indicator and easily accessible.
- Electrical connections other than those specified may not be performed.

2.2.1 Service Technician's Responsibilities

- All electronic and mechanical calibrations and/or adjustments required for making this equipment perform to accuracy and operational specifications are part of the installation.
- They are included in the installation charge.
- Only those charges which are incurred as a result of the equipment's inability to be adjusted or calibrated to performance specifications may be charged to warranty.
- The equipment consists of printed circuit assemblies which must be handled using ESD handling procedures, and must be replaced as units.
- Replacement of individual components is not allowed.
- The assemblies must be properly packaged in ESD protective material and returned intact for replacement credit per normal procedures.



2.2.2 Users' Responsibility

- ✓ **Absolutely no physical, electrical or program modifications other than selection of standard options and accessories are to be made to this equipment.**

Section 3: Description

CAUTION

The shipping weight of the 1200 is approximately 185 pounds. Use caution to prevent personal injury or damage to the product.

The portable platform scale base is constructed of cast iron with cast iron levers. The weight display is a battery-or AC-powered FB1200 Series instrument. It is equipped with a communication port for connecting printers, displays, and/or computers.

The scale is rated at 1000 lbs. capacity with an interval or graduation size of .2 lb.

3.1 Tools Needed for Assembly

1. #1 (or small) slotted screwdriver
2. #2 Phillips screwdriver
3. 10" adjustable wrench
4. Common pliers

NOTE: For commercial weighing applications, the scale must be "placed in service" by a licensed scale technician. For a service facility near you, please call Fairbanks Scales at 800-451-4107.

Section 4: Assembly

CAUTION

The scale base assembly, as shipped, weighs 185 pounds.
USE CAUTION WHEN LIFTING.

NOTE: The descriptions below refer to the item numbers used in the parts list in Section 7. Use the parts list and item numbers to identify the parts below.

4.1 Wheel and Pillar Assembly

- A. Set the scale base assembly (#4) upright on the floor.
- B. Starting with an axle (#19), insert a cotter pin (#17) in one end, then place a washer (#18) and a wheel (#16) over the open end.
- C. Insert the axle's other end through BOTH holes in the base.
- D. Place a wheel (#16), then a washer, over the other end and insert a cotter pin.
- E. Repeat steps B, C, and D for the second axle.
- F. "Center" the axles in the base, then insert the locking screws (#15) into the tapped holes in the bottom of the base directly under the axle holes.
- G. Tighten the locking screws, then secure the lock nuts (#14).
- H. Screw the two (2) pillar rods (#1) into the base in the two (2) tapped holes provided.
- I. Place the pillar (#2) over the pillar rods with the cutouts facing to the left and right of the platform.
- J. Insert the steelyard rod (#35) down through the pillar with the bent hook on top and the loose swivel hook on the bottom.

4.2 Mounting Bracket Kit Assembly

The adapter will be partially assembled and packed with bubble wrap. The adapter bracket (#77), stiffener plate (#78), and load cell mounting plate (#72) will be in correct orientation in the box. See figure 4-1.

- A. Lift the entire mounting bracket kit out of the box and remove the bubble wrap placed between the stiffener plate (#78) and load cell plate (#72), allowing the load cell linkage assembly to go through the hole and the load cell plate (#72) to set flush on top of the stiffener plate (#78).
- B. With the slot in the back (as viewed from the platform), place the assembly with the handle facing away from the platform deck OVER the two pillar rods so it rests on top of the pillar.
- C. Ensure that the mounting bracket is setting flush and aligned with the pillar. Looking up from the bottom, you should see two (2) small studs in opposite corners on the INSIDE of the pillar. Use the two pillar rod washers and nuts to secure the mounting bracket to the top of the pillar. Use a wrench to tighten the pillar rod nuts but be careful not to touch the load cell while tightening.

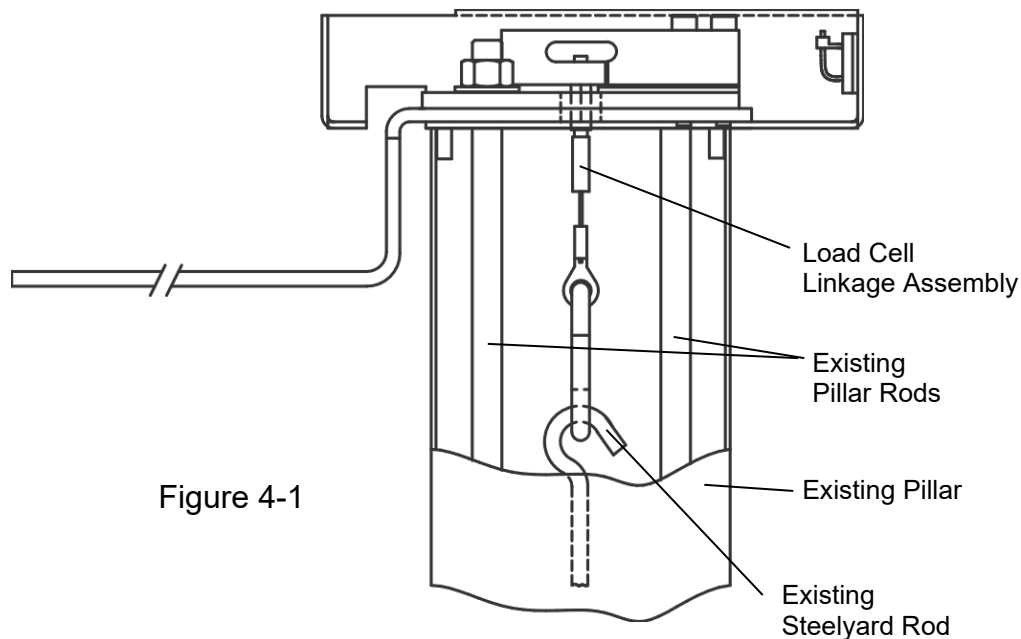
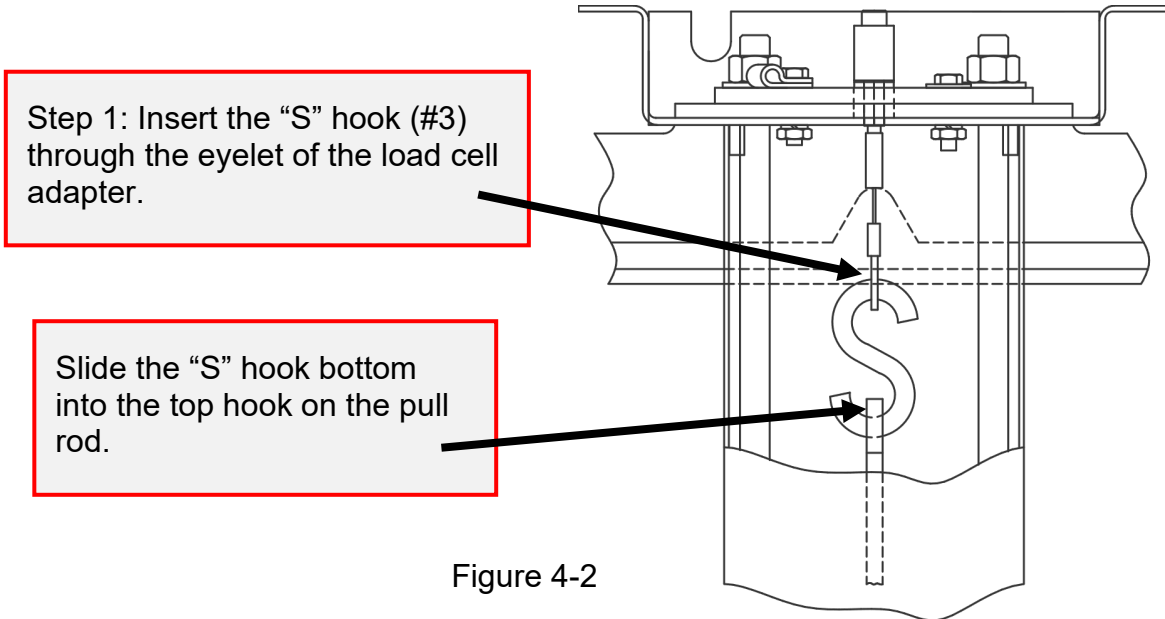


Figure 4-1

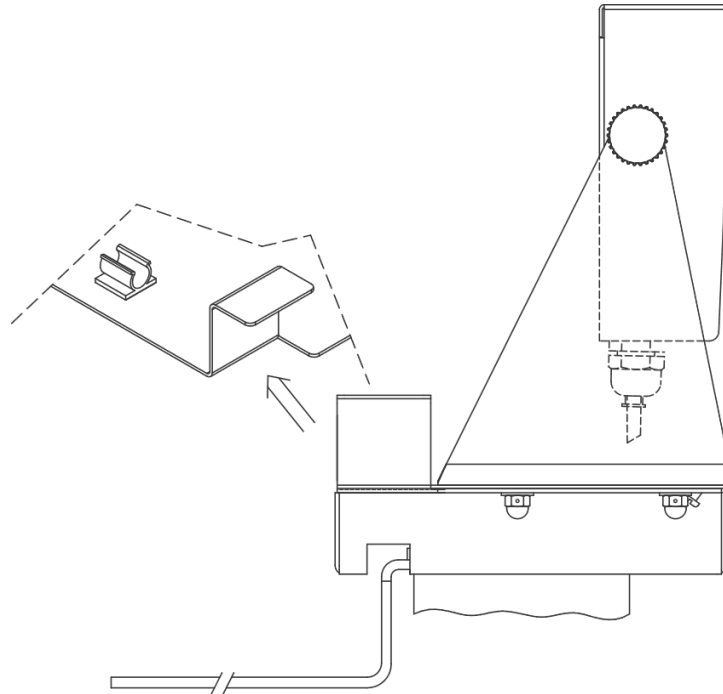
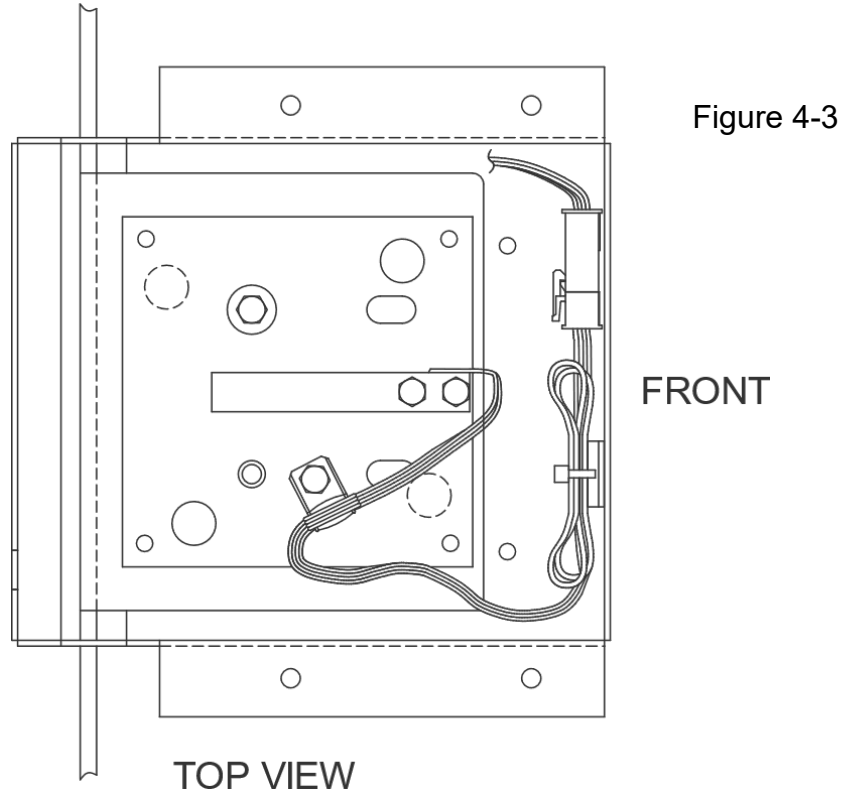
- D. At the bottom of the scale base, in the back, lift the lever end (#34) UP while placing the hook under the lever's pivot while holding the hook on top of the pull rod.

- E. Insert the “S” hook (#73) (Figure 4-2) through the eyelet of the load cell linkage cable adapter.
- F. Slide the “S” hook bottom into the top hook on the pull rod.



4.3 Installing the Instrument

- A. The load cell cable has a 4-pin molex connector attached.
- B. If necessary, wire the 24” ribbon cable (p/n 22706) to the instrument –opposite end of this cable has a mating 4-pin Molex connector. Gently slide connectors together until they snap in place.
- C. Locate the cable tie mount (#75) in the bracket approximately as shown. Secure the load cell cable in place with wire tie (#76). Ensure cables *do not touch live portion of the load cell*. See figure 4-3 (below).
- D. When installing instrument assembly to plate and bracket, use acorn nuts. Remove feet from instrument. See figure 4-4.
- E. Loop the load cell cable through the cable clip (#79) one time.
- F. Place the instrument on top of the mounting bracket with the keypad/display facing the scale platform with mounting bracket cutout facing scale platform. Use the screws, washers, lock washers, and nuts to secure the instrument to the mounting bracket as shown in figure 4-4.



4.4 Powering Up the Instrument

- A. Using the AC adapter: Plug the AC adapter into the connector on the back of the instrument, then plug the AC adapter into a 110-volt outlet.
- B. The instrument will perform a warm-up cycle.
 - a. Display test – All legends and digits tested.
 - b. Software Revision displayed, briefly followed by the audit trail count.
 - c. Display then shows the current weight on the scale.
- C. Clear the scale platform and zero the instrument. Place an item on the scale platform, read the weight, then remove the item. The instrument should return to a “0.0” display. Place the item on the platform again. The reading should be the same for both weighments. If the instrument indicates different weights or does not return to “0.0” refer to the Troubleshooting Guide, Section 5.
- D. Please use publication **#51513 (FB1200 Series Operator’s manual)** for the detailed instructions regarding instrument features and operation.

NOTES: Battery Power: The battery is not fully charged when shipped. For optimum battery life, **fully charge the unit for 5 hours prior to placing the scale in service.**

If the instrument continues to display “E00200”, this indicates an uncalibrated instrument. Please contact your Fairbanks Scales Service Technician.

Section 5: Error Messages

Error messages may be displayed to warn of an operation outside of acceptable limits. These messages are given below. Short messages will appear as a single message on the display. Longer messages will appear on the display in two parts, shown alternately.

5.1 Weighing Errors

These messages show status messages or errors that have occurred during normal weighing operation.

Error	Description	Resolution
U.LOAD	The weight is below the minimum allowable weight reading.	Increase the weight or decrease the minimum allowable weight reading.
O.LOAD	<p>The weight is above the maximum allowable weight reading.</p> <div style="border: 1px solid orange; padding: 5px; background-color: #fff9c4;"> <p>Warning! Overloading may damage mechanical scale elements.</p> </div>	Check the condition of load cell connections. Check for damaged load cell.
ERROR RANGE	The weight reading is beyond the limit set for Zero setting. The operation of the Zero key is limited in the setup during installation. The instrument cannot be Zeroed at this weight.	Increase the zero range (CONFIG:0.r) or use the Tare key instead.
ERROR MOTION	Scale motion has prevented a Zero, Tare or Print operation from occurring on command.	Try the operation again once the scale is stable.
ERROR ADC	An error with the ADC has prevented an operation from occurring.	Ensure loadcell cabling is correct.

5.2 Setup Errors

These messages show status messages or errors that may occur during the instrument setup.

Error	Description	Resolution
ENTRY DENIED	When accessing setup, more than three attempts have been made with the incorrect passcode.	Turn the instrument off. When the instrument is turned back on, enter the correct passcode to access setup.
WR DENIED RD DENIED	The instrument may be in supervisor setup and an item that needs service setup has been selected for editing.	Access service setup to access this item.
CHECK ERR.#	<p>At least one parameter is not acceptable to requirements. Unit switching limits are always checked, all other errors are only checked when TRADE mode is set to OIML when leaving setup.</p> <p>Error numbers:</p> <ol style="list-style-type: none"> 1. Verification interval e1, e2 or e3 >50 2. Graduations >10000d 3. No weighing unit selected 4. Motion detection is set to NONE 5. Zero tracking not OFF or 0.5d/s 6. Zero setting range not $\pm 2\%$ or $-1\% +3\%$ 7. Zero dead band not set to 000000 8. Keys set for instant operation 9. Direct mV/V calibration selected <p>Unit switching outside allowable limits</p>	Access setup to check the relevant setting.

5.3 Calibration Errors

These messages warn of incorrect calibration technique, or of attempts to calibrate the instrument beyond its specification.

Error	Description	Resolution
FAILED BAND	An attempt has been made to calibrate with a weight or signal which is not in the valid range.	Check retry. weights
FAILED ERROR	An attempt has been made to calibrate while the scale signal is not valid.	Check loadcell connection and the 4-wire/6-wire setting.
FAILED TIMEOUT	For an unknown reason, the calibration was unable to complete.	Retry.
FAILED RES	An attempt has been made to calibrate the scale to a resolution which is too high for the instrument.	Check retry. weights
FAILED TOO CLOSE	An attempt has been made to add a multi-point calibration point too close to zero, span or another multi-point calibration point.	Check retry. weights

5.4 System Errors

The condition of the internal circuits is continuously monitored. Faults or out-of-tolerance conditions are shown on the display as an E type error message.

Errors are added together in hexadecimal:

- Example 1: If the power supply voltage is low which causes a low excitation voltage, the error message will be E00005 (00001_H + 00004_H).
- Example 2: The loadcell is not connected (i.e. both sense lines are disconnected). This will cause error E000C0 (00080_H + 00040_H).

The numbers add in hexadecimal as follows:

1 - 2 - 3 - 4 - 5 - 6 - 7 - 8 - 9 - A - B - C - D - E - F

For example:

$$2_H + 4_H = 6_H$$

$$4_H + 8_H = C_H$$

$$A_H + 2_H = C_H$$



Error	Description	Action
E00001	The power supply voltage is too low	Check power supply and cables
E00002	The power supply voltage is too high	Check power supply and cables
E00004	The positive sense line is not connected	Check the loadcell connection.
E00008	The negative sense line is not connected	Check the loadcell connection.
E00010	The temperature is too hot or cold	Check the location
E00080	Resolution error	Recalibrate instrument with valid resolution
E00100	The real time clock has failed	Return for service
E00200	The setup and calibration information has been lost	Recalibrate and reconfigure the unit
E00400	The factory information has been lost	Return for service
E00800	The loadcell excitation voltage is too low	Check the scale
E01000	The loadcell excitation voltage is too high	Check the scale
E02000	The ADC input is out of range	Check the scale
E04000	The runtime information has been lost	Check the scale

Section 6: Rechargeable Battery

Battery life continuous	Recharge time
34	5 hours

NOTE: There are four (4) basic tests for a battery using a digital voltmeter and the front panel indications.

1. Any battery not connected to an instrument or charger and having a reading less than 2.65 VDC should be disposed of properly and replaced.
 2. A fully-charged battery not connected to an instrument or charger should have a reading of 4.1 – 4.2 VDC.
 3. A fully-charged battery plugged into and loaded by an instrument (AC power unplugged) should have a reading of 4.1 – 4.2 VDC.
 4. A fully-charged battery plugged into and loaded by an instrument (AC power plugged in) should have a reading of 4.1 – 4.2 VDC.
-

Section 7: Replacement Parts and Diagrams

7.1 1200 Series Replacement Parts

See figure 7-1.

Item no.	Part no	Description
1	95850	Pillar rod, long (short)
2	58933	Pillar
3	95847	Platform cover
4	95848	Frame
5	95855	Cotter pin
6	58937	Bearing, platform
7	95856	Screw, Phillips head
8	95857	Screw, Allen
9	95858	Bubble level
10	95859	Pin, corner loop
11	71623	Loop, corner
12	71624	Bearing, corner loop
13	71625	Cotter pin
10, 11, 12, 13	58938	Loop, corner assembly
14	95867	Hex nut
15	95868	Hex head bolt
16	95869	Wheel, 5" diameter
17	71628	Cotter pin
18	71629	Washer, flat
19	71630	Axle
24	95861	Pivot, load and fulcrum
25	72948	Short lever assembly
26	58939	Center connection assembly
31	95863	Center pivot, long lever
33	72947	Long lever assembly
34	95864	Long lever tip pivot
35	168302	Steelyard rod assembly (short)
44	71592	Acorn nuts (2)
61	95865	Platform locking pin
62	95866	Cotter pin, platform locking pin

7.2 1200 Series Platform Parts Diagram

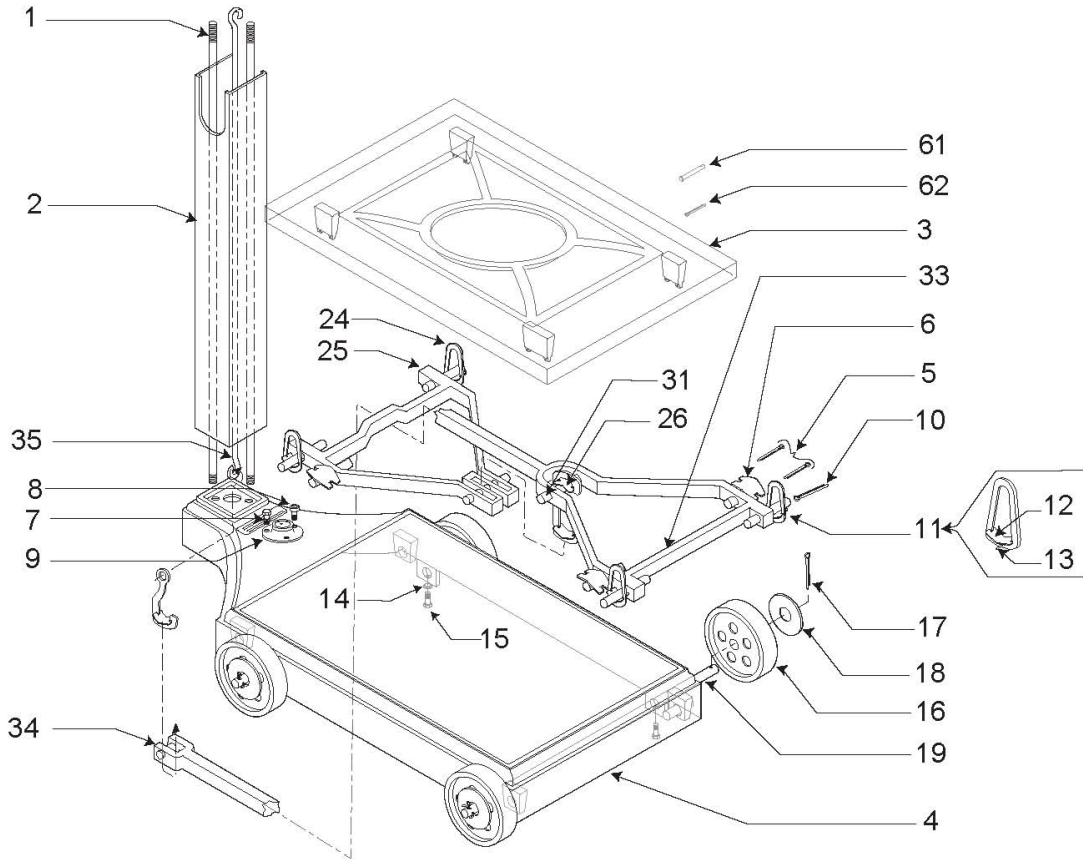


Figure 7-1

7.3 1200 Series Parts List

(See figures 7-2, 7-3, 7-4, 7-5 and 7-6)

Item no.	Part no		Description
17	24155	2	SCREW, M4 X 12, PAN HEAD
26	11176	1	Bushing, Amphenol Rubber
71	35341	1	Load cell assembly
72	14237	1	Plate, mounting
73	12643	1	"S" hook
75	17617	1	Mount, cable tie
76	17613	1	Tie, wire
77	20176	1	Bracket
78	26299	1	Handle assembly
79	11263	1	Clip, cable
80	13182	2	Screw, cap, socket head M4 x .25
81	11119	5	Washer, plain-flat #10
82	11189	2	Washer, lock extension tooth spring #10
83	11103	2	Nut-hex 10-32
84	11086	2	Screw cap, hex head, 10-32 x .1.12
85	15716	4	Nut, threadlock acorn, 10-32
88	35145	1	Plate, Mount, universal instrument to line scale
89	38041	1	Instrument assembly FB1200
91	13584	2	Shim
92	14342	1	Spacer, load cell
93	13099	1	Linkage, cable
94	17579	1	Spacer, 8-32 threads x .38 lg
95	22706	1	Cable assembly
98	17626	1	Clip, plastic

7.4 1200 Series Parts Diagrams

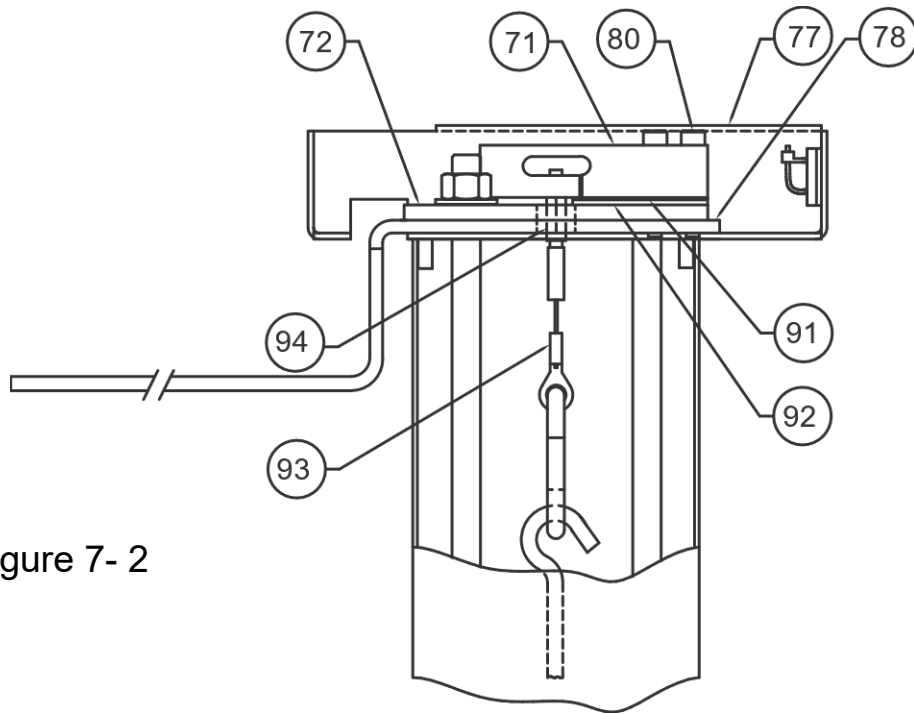


Figure 7- 2

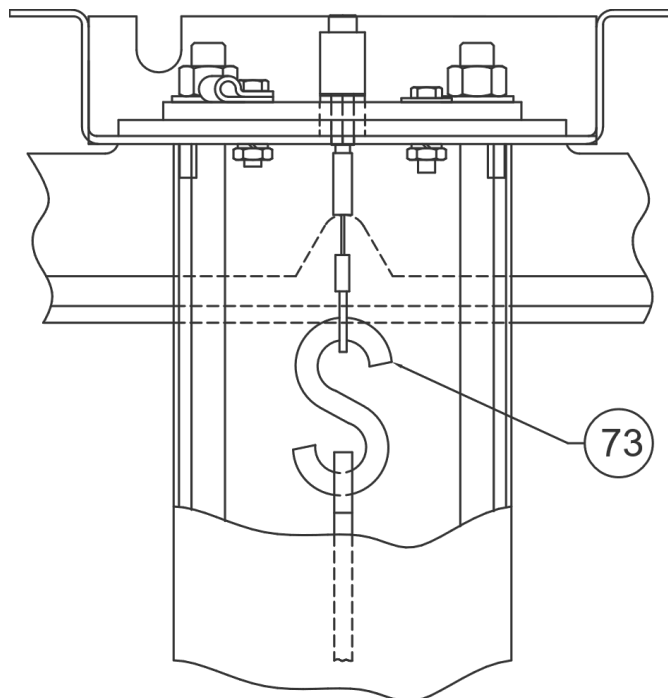


Figure 7- 3

Figure 7- 4

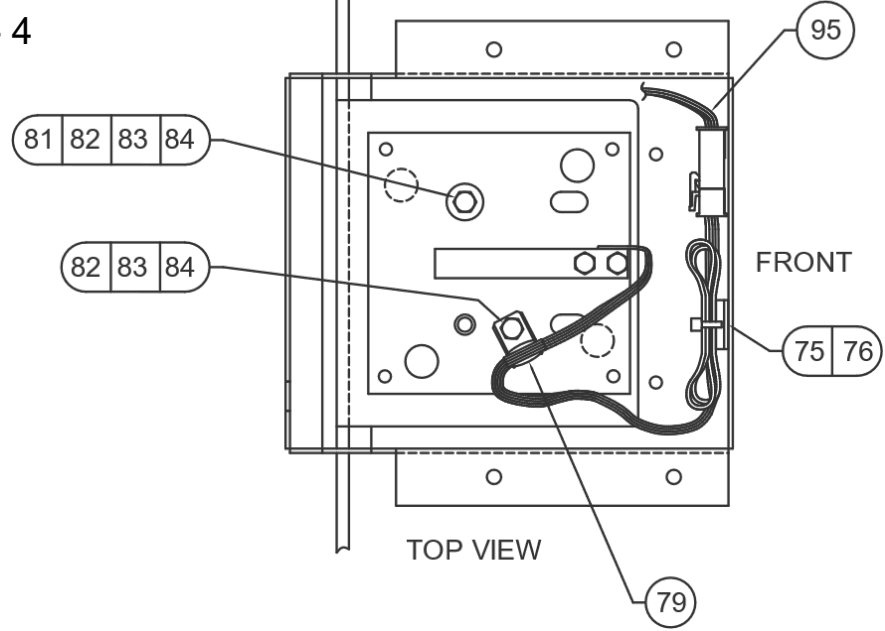
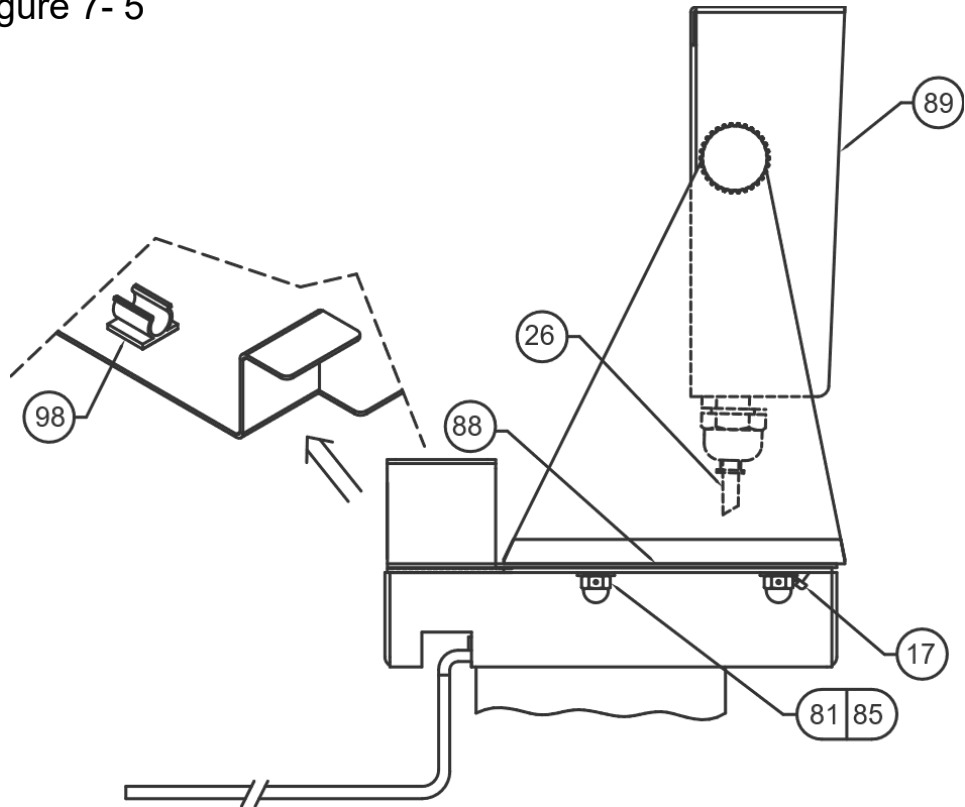


Figure 7- 5



Appendix I: Wiring

1. - EXC
2. - SEN
3. + EXC
4. + Sen
5. Shield
6. + SIG
7. - SIG



Manufactured by Fairbanks Scales, Inc.

www.fairbanks.com

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Document 51549**