FAIRBANKS SCALES

Installation / Operator Manual

1600 Series
LED Remote Display

Models 1601 & 1605

© 2007-2009 by Fairbanks Scales, Inc.
All rights reserved

51157
Revision 6 10/09

Amendment Record

1600 Series LED Display Unit

DOCUMENT 51157

Manufactured by Fairbanks Scales Inc.
821 Locust
Kansas City, Missouri 64106

Created	05/2007	
Revision 1	05/2007	Released Manual
Revision 2	07/2007	Included 1601 drawings and information Updated 1605 specifications
Revision 3	08/2007	Corrected drawings and verbiage.
Revision 4	01/2008	Updated specifications and steps
Revision 5	04/2009	Software Enhancements, added INTELL feature, Updated wiring charts 4169, 4170 & 51157-3
Revision 6	10/2009	Updated parts list

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.

Fairbanks Scales shall not be liable for any loss, damage, cost of repairs, incidental or consequential damages of any kind, whether or not based on express or implied warranty, contract, negligence, or strict liability arising in connection with the design, development, installation, or use of the scale.

© Copyright 2007-2009

This document contains proprietary information protected by copyright. All rights are reserved; no part of this manual may be reproduced, copied, translated or transmitted in any form or by any means without prior written permission of the manufacturer.

Table of Contents

Section 1: General Information

INTRODUCTION

This manual provides specifications, installation procedures, programming, and service information for the Fairbanks model 1600 series L.E.D. remote display.

DESCRIPTION

The **Fairbanks 1600 series** is an intelligent L.E.D. remote display.

- It can detect the data communication protocols of nearly every scale manufacturer's instruments.
  - Programmable **Learning Mode.**
- The bright red L.E.D. display is easily viewed from distances of **up to 75 feet** for the **1601**, and up to **300 feet** for the **1605.**
  - Adjustable Intensity control
  - **Reflect Mode** displays the weight information correctly in a mirror.
- The unit is housed in a weather-tight enclosure for inside or outside use.
  - Hooded shield eliminates glare and protects it from debris and weather.
- No moving parts

SPECIFICATIONS

Display	• **1601** – 1.5 inch High intensity LED Display • **1605** – 5 inch High Intensity LED Display – Six (6) digits with seven (7) segments – Includes decimal and colon
Additional Display Features	– Time – Date – Temperature (*optional*) – Lb or Kg displays – GR or NT displays
Communication Interface	• RS232, 50 feet maximum • 20mA Current Loop, 1000 ft maximum • Active or Passive • RS485, 4000 ft. max

Specifications, Continued

Program Setup	Automatic or Manual
Viewing Distance	• **1601** – Up to 75 feet • **1605** – Up to 300 feet
Enclosure	1601 – NEMA 4X 1605 – NEMA 3
Temperature Range	-29C to 49C / -20F to 120F
Power	115VAC 1A Max

Section 2: Installation

GENERAL SERVICE POLICIES

Phases of Installation

The complete installation consists of the following phases:

A. Verifying the application

B. Unpacking

C. Equipment checkout

D. Customer and site readiness

E. Remote Terminal connections

F. Adjustments

G. Customer training

Conferring with Our Client

- The lead tech must be prepared to recommend the arrangement of components which provide the most efficient layout, utilizing the equipment to the best possible advantage.
- The warranty policy must be explained and reviewed with the customer.

Before the installation is considered complete, the equipment is to be programmed to meet or exceed any applicable weights and measures requirements.

Pre-Installation Checklist

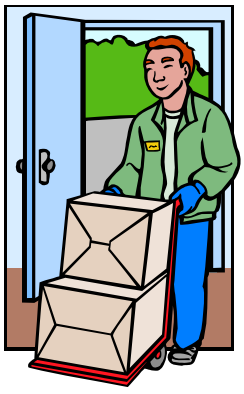
The following points should be checked and discussed with the **Area Sales Manager and/or customer**, if necessary, before the technician goes to the site and installs the equipment.

- ✓ Check the customer's application to make certain it is within the capabilities and design parameters of the equipment.
- ✓ If the installation process might disrupt normal business operations, tell the customer and ask that they make ample arrangements.
- ✓ Is properly-grounded power available at the installation location?
- ✓ Be sure that the equipment operator(s) are available for training.
- ✓ The Service Technician must thoroughly review the installation procedures.
- ✓ The service technician reviews the recommended setup with the Area Sales Manager or Area Service Manager, and together they identify all necessary variations to satisfy the customer's particular application.

Unpacking

Follow these guidelines when unpacking all equipment:

- ✓ Check in all components and accessories according to the customer's order.
- ✓ Remove all components from their packing material, checking against the invoice that they are accounted for and not damaged.
    - *Advise the shipper immediately, if damage has occurred.*
    - *Order any parts necessary to replace those which have been damaged.*
    - *Keep the shipping container and packing material for future use.*
    - *Check the packing list.*



- ✓ Collect all necessary installation manuals for the equipment and accessories.
- ✓ Open the equipment and perform an inspection, making certain that all hardware, electrical connections and printed circuit assemblies are secure.
- ✓ Do not reinstall the cover if the final installation is to be performed after the pre-installation checkout.
- ✓ Do not locate near magnetic material or equipment/instruments which use magnets in their design.

Safety

Follow these safety precautions during operation:

- ✓ Be careful lifting and moving the remote terminal when installing or repairing it.
- ✓ Ensure that the supporting structure for the remote display suits its weight in advance of installation.

Users' Responsibilities

- All electronic and mechanical calibrations and or adjustments required for making this equipment perform to accuracy and operational specifications are considered to be 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.
- Absolutely no physical, electrical or program modifications other than selection of standard options and accessories are to be made to this equipment.
  - Electrical connections other than those specified may not be performed, and physical alterations (holes, etc.) are not allowed.
- 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.

WIRING

The setup of the remote display consists of the following steps:

1. Wire the display to the indicator.
2. Wire the displays together, if there is more than one.

— The display can be wired for **20mA Active, 20mA Passive**, **RS485** or **RS232**.

Wiring Configuration

- **Indicators with Passive 20mA Output (polarity sensitive)**

INDICATOR	INTERFACE ASSEMBLY	TB1
20mA (+)	(+) 15 VDC	(1)
	GND	(2) Jumper to (8)
	RS232 Rx	(3)
	RS232 Tx	(4)
	RS485A	(5)
	RS485B	(6)
20mA (—)	C-Loop (+)	(7)
	C-Loop (—)	(8) Jumper to (2)

- **Indicators with Active 20mA Output**

INDICATOR	INTERFACE ASSEMBLY	TB1
	(+) 15 VDC	(1)
	GND	(2)
	RS232 Rx	(3)
	RS232 Tx	(4)
		(5)
		(6)
20mA (+)	C-Loop (+)	(7)
20mA (—)	C-Loop (—)	(8)

Wiring Configuration, Continued

- **Indicators with RS232 Output**

INDICATOR	INTERFACE ASSEMBLY	TB1
	(+) 15 VDC	(1)
GND	GND	(2)
Tx	RS232 Rx	(3)
	RS232 Tx	(4)
		(5)
		(6)
	C-Loop (+)	(7)
	C-Loop (–)	(8)

- **Indicators with RS485 Output**

INDICATOR	INTERFACE ASSEMBLY	TB1
	(+) 15 VDC	(1)
GND	GND	(2)
	RS232 Rx	(3)
	RS232 Tx	(4)
RS485A	RS485A	(5)
RS485B	RS485B	(6)
	C-Loop (+)	(7)
	C-Loop (–)	(8)

INSTALLATION

The display comes with a mounting bracket on the back of the enclosure.

- The display can be wall mounted or, using ACC 1400, mounted on a post.
- The AC power cord exits the enclosure through a watertight gland in the bottom of the case.
- One additional small watertight gland on the left side of the unit is provided for future expansion.
- Two additional watertight glands are provided for the RS232 or 20mA loop cable from the indicator.

Installing the display

1. Choose the location and mount the display.
2. **Remove the four screws** holding the Access Panel and Liquid-tight Glands on the **bottom of the display enclosure**.
3. Bring the **Communications Cable** from the Indicator through the Water-tight Gland in the plate from the bottom of the display.

— Provide enough cable inside the display to reach **TB1** on the **PC Board**.

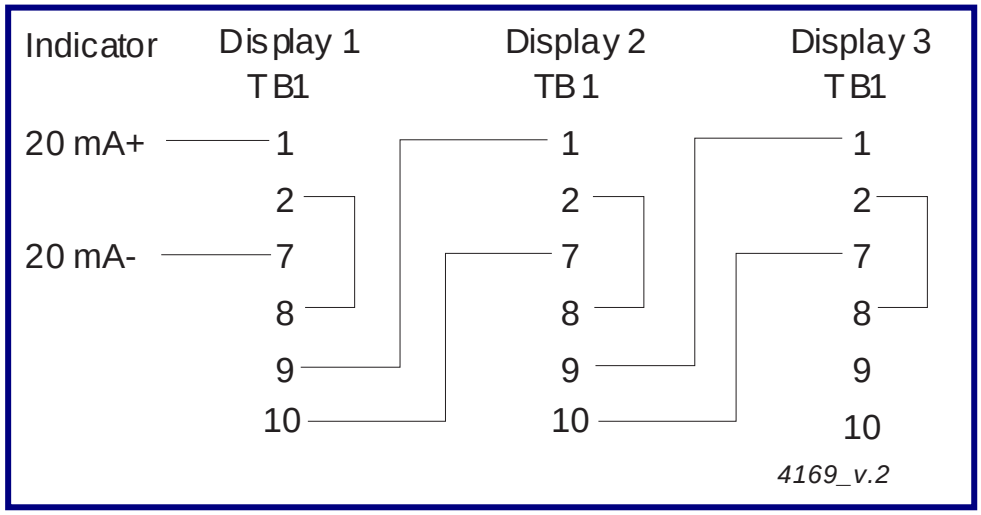
4. Dress and tin the ends of the **Communications Cable** wires.
5. Remove the **Plug-in Connector** from **TB1**.
6. Wire the plug as shown in the selected wiring configuration.
7. Insert the **Plug** into **TB1**.
8. **Reinstall the four screws** on the **bottom of the display enclosure.**

Installing Multiple Displays

Multiple Displays are **Daisy-Chained** together using the **Passive 20mA Retransmission.**

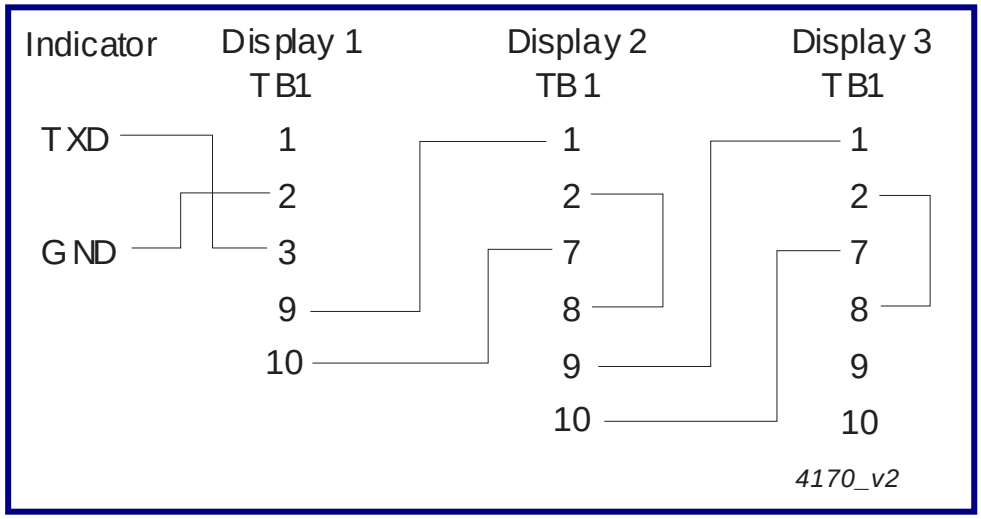
20mA Configuration

Additional displays are wired the same as **Display 2 and Display 3.**



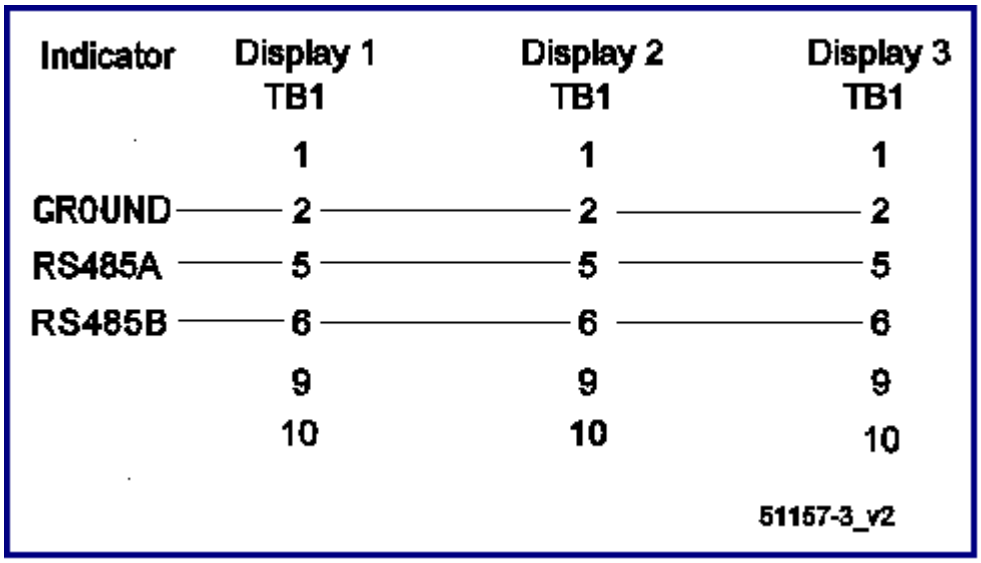
RS232 Configuration

Additional displays are wired the same as **Display 2 and Display 3**.



RS485 Configuration

When using the **RS485 Configuration**, displays are Daisy-chained together.

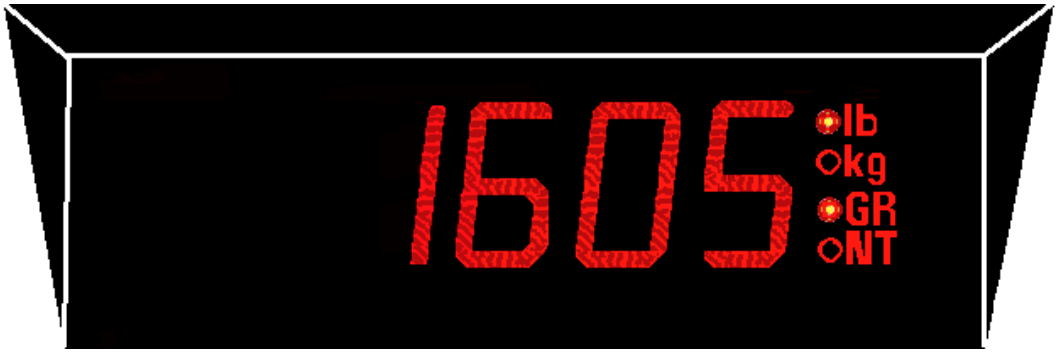


Warm-Up

1. When the unit is turned on, it first displays the **Program** and **Revision Number**.
2. It proceeds through a counting sequence.

— The intensity of the light changes.

3. The display blanks momentarily, then shows the weight value sent by the indicator.



Section 3: Programming

This section describes the general navigation and communication programming of the Fairbanks Model 1600 Series L.E.D. Remote Display.

Accessing the buttons

There are two access areas for programming with the buttons

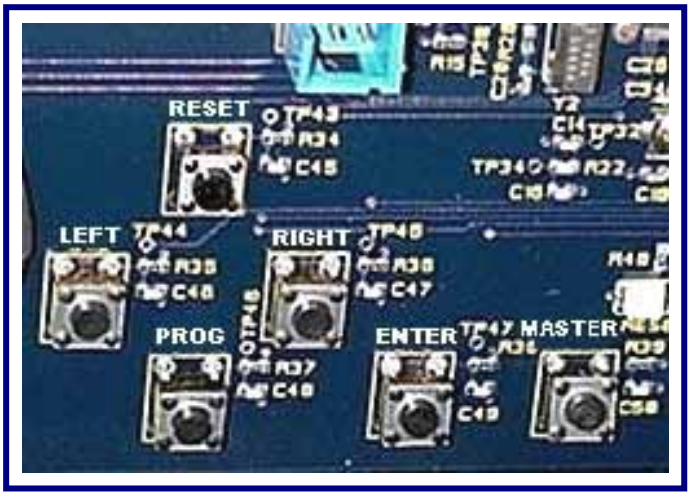
- Removing the four screws on the front panel of the display.
- **1605 model only**: Removing the four screws on the bottom, opening the access panel.

USING THE BUTTONS

- There are **six switches** located on the PC Board used to program the display.
- **These switches are accessed either through the small door on the under side of the display enclosure or through the front panel.**
- Remove the four fastening screw to open the front panel, then carefully open the display enclosure.

Switch Functions

Switch functions are listed below.



S1 RESET

Resets the microprocessor and allows the display to go through the **Warm-up Sequence.**

S2 LEFT

Shifts the displayed data one place to the **LEFT**.

- This switch will also **ADVANCE** to the next program step.

Switch Functions, Continued

S3 RIGHT

Shifts the displayed data one place to the **RIGHT**.

- This switch will also **BACKUP** to the previous program step.

S4 PROG

Allows access for manual programming or auto programming.

S5 ENTER

Accepts the displayed choice during the programming operation.

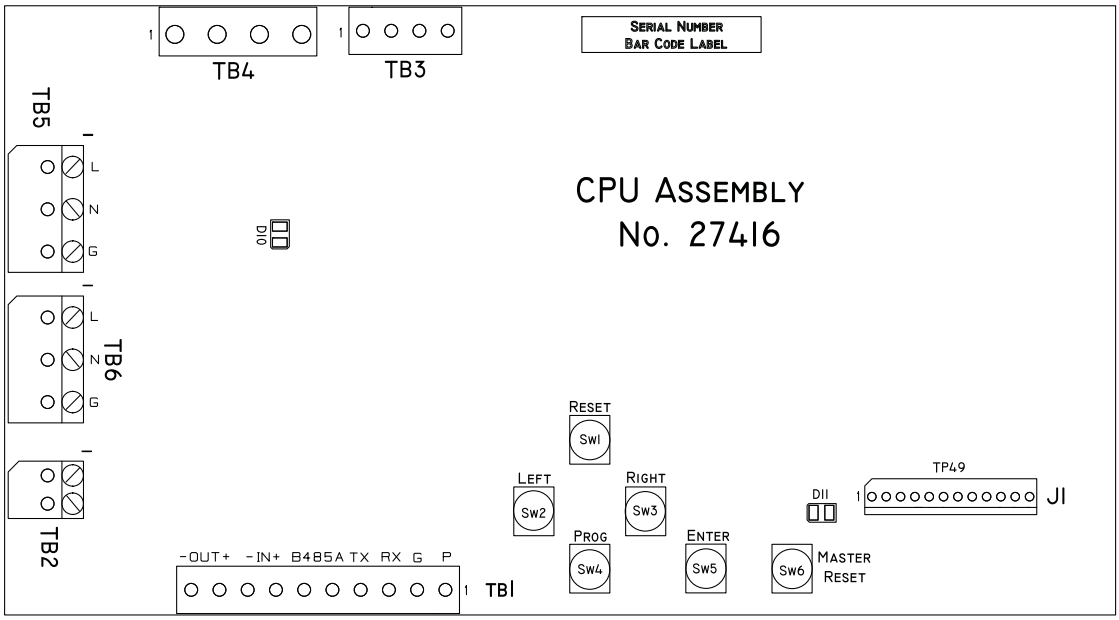
S6 MASTER RESET

Issues a **Hardware Reset**.

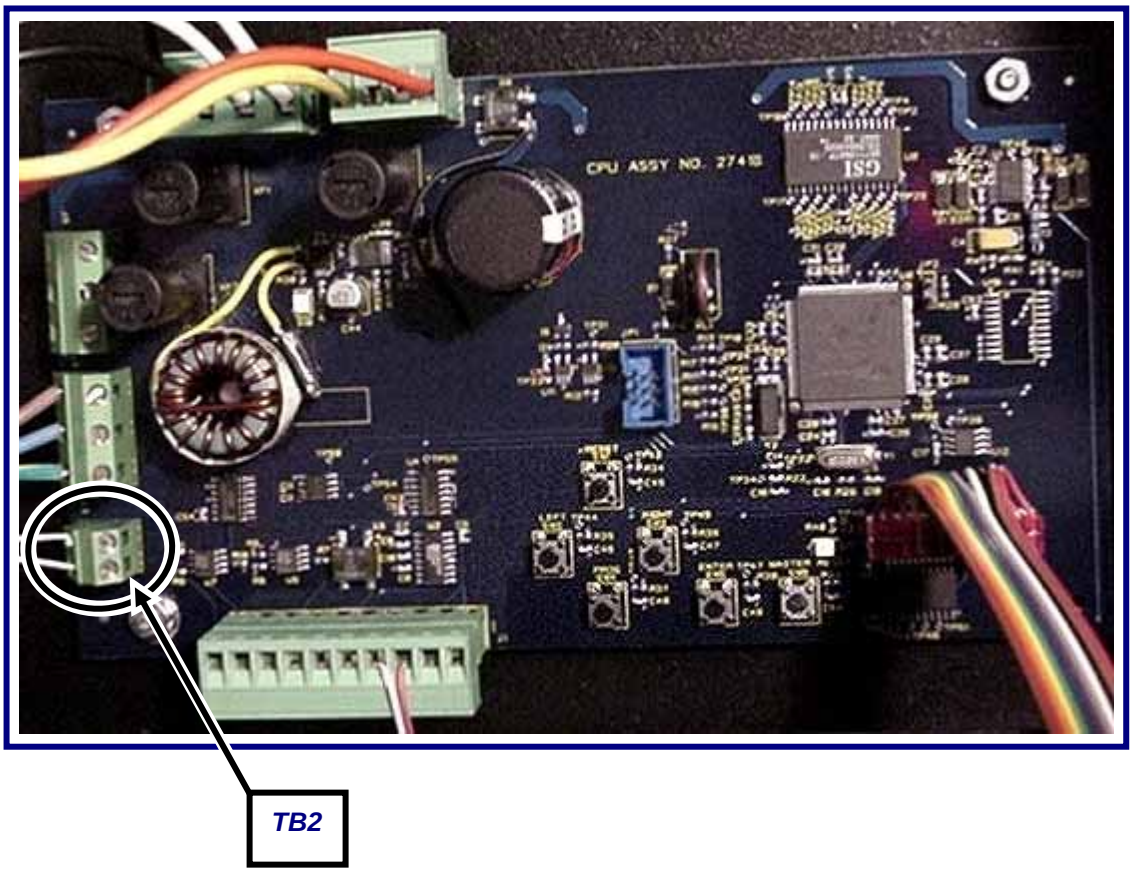
- Currently the same as pressing the **RESET** button.

See the following page for the diagram and accompanying picture.

USING THE BUTTONS



The drawing above shows the formatting buttons and the pertinent I/O plugs.
Pictured below is the actual CPU Assembly.



Installing the Optional Temperature Probe

1. Insert the optional **Temperature Probe** into the open **Watertight Gland.**
2. Tighten the threads down onto the **Temperature Probe** until it is firm and snug.
3. Connect the two **Temperature Probe wires** to **TB2.**

— Connections are not polarity sensitive (**+** and **—**), so wires can attach to either terminal.

Communications Programming

The **Communications Programming** performs either *automatically* or *manually*.

- When using the **Automatic Mode**, the display automatically tries to determine the communications protocol sent by the indicator during the warm-up sequence.
- Once the protocol is determined, it is stored in memory for future use.
- Protocol parameters include the **Baud Rate, Data Bits,** and **Parity.**
- ***It is recommended to use the automatic method first.***

— If this does not succeed, use the manual method.

Automatic Programming Mode

The instrument interfaced to the **1600 Series Remote Display** must have following to perform properly.

- The proper port must be configured.
- The cable must be connected to the appropriate port.
- For the **Automatic Programming Mode** to work properly, the unit must be placed in the **Continuous Output Mode**.

1. Press the **RESET** switch to start the **Warm-up Sequence**.
2. During the sequence, press down and hold the **PROG** switch for ***three (3) seconds,*** and then release.

— The display continues through the warm-up sequence.

— The display will start at **9 8 2** and count down searching for a communications match. All other programming is unaffected.

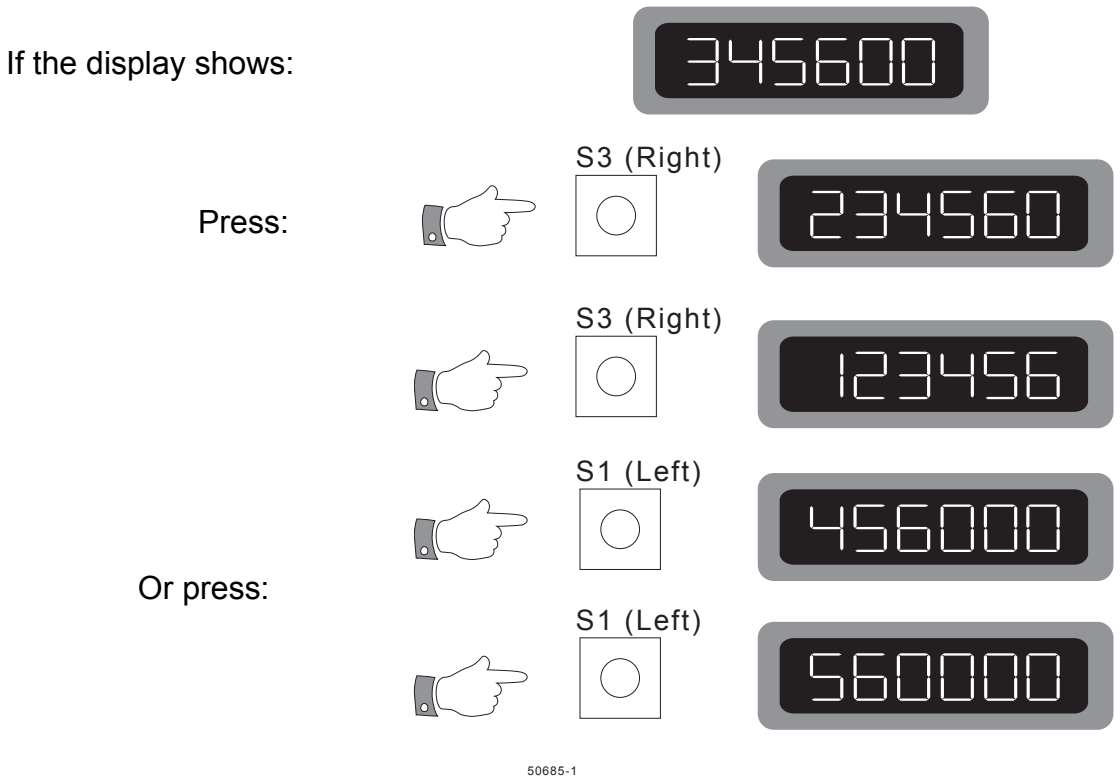
When the Automatic Programming is complete and successful, the current weight is displayed.

Adjusting the Digit Placement

If **Step 4** is successful and weight information is being received, use the **LEFT** and **RIGHT** switches to move the displayed digits to their appropriate location.

NOTE: *If* **INTELL** *is set to* **ON** *the left and right buttons are inactive.*

1. Press the **LEFT** or **RIGHT** switch to shift the displayed data.



DISPLAY OUTPUT DEFAULT SETUPS

Fairbanks Remote Display Output has the following default setups:

- **2400 Baud**,
- **Seven (7) Data bits**
- **Odd parity**

MANUAL PROGRAMMING MODE

1. Power-up the display.
2. After the warm-up sequence is completed, press and hold the **PROG** switch for **three (3) seconds**, then release.

— To **advance or back up through the program steps**, press the **LEFT** or **RIGHT** switch.

— To **view the stored value**, press the **ENTER** switch.

NOTE: *At any time through the formatting process, press the* **PROG** *switch to exit to* **DONE** *then press* **ENTER** *to save and exit.*

3. Press the **LEFT** or **ENTER** switch.

— The word **BAUD** displays.

4. Press the **ENTER** switch.

— The current **Baud Rate Setting** displays (***i.e. 2400***).

5. Use the **LEFT** or **RIGHT** switches to toggle through the available **Baud Rate Settings**.

— **300** — **600** — **1200**
— **2400** — **4800** — **9600**
— **19,200** — **38,400** — **57,600** — **115,200**

6. Press the **ENTER** switch to select the appropriate setting.

MANUAL PROGRAMMING MODE, CONTINUED

7. When the abbreviation **CHAR** displays, press the **ENTER** switch.

– Either a seven (**7**) or an eight (**8**) displays for the current **Data Bits Setting**.

8. Use the **LEFT** or **RIGHT** switches to toggle and select the correct setting.

9. Press the **ENTER** switch to confirm the setting.

– The word **PARITY** displays.

10. Press the **ENTER** switch and the display will show the current parity setting.

11. Use the **LEFT** or **RIGHT** switches to toggle through the three choices.

– **None** – **Even** – **Odd**

12. With the appropriate choice displayed, press the **ENTER** switch.

13. The abbreviation **ID** displays, signifying ***"Identification."***

– The **ID Filter** sorts data from a **Data String** from the Instrument.

– The **ID Filter** then displays that Data only.

14. Press the **ENTER** switch

– **ALPH X** displays, where **X** is the current setting.

15. Press the **LEFT** or **RIGHT** switches to toggle through choices.

– **Y = Yes** – **N = No**.

- *If **Y** is selected, the display uses **Alpha Characters for the ID**.*
- *If **N** is selected, the display uses a **Numeric ID**.*
- *See tables on the next page.*

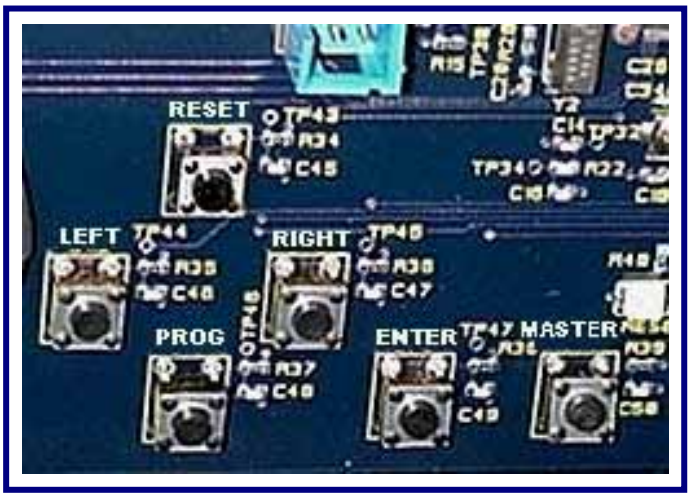
16. Press the **ENTER** switch.

– The current ***ID Setting*** displays.

– The **RIGHT** switch increments the **right digit**.

– The **LEFT** switch increments the **left digit.**

17. Press the **ENTER** switch.



MANUAL PROGRAMMING MODE, CONTINUED

18. With the appropriate choices displayed, press the **ENTER** switch.

NOTE: *The letters* **M** *and* **W** *are not displayed.*

Numeric ID Formats	
CODE	**DATA DISPLAYED**
40	Lb. Gross
41	Lb. Net
42	Lb. Tare
43	Kg. Gross
44	Kg. Net
45	Kg. Tare
00	Display all data received

— The word **INTELL** displays

19. Press the **ENTER** switch.

— The current setting displays either **ON** to automatically justify weight data, or **OFF** to manually justify (**LEFT** and **RIGHT** buttons active).

20. Pressing the **LEFT** or **RIGHT** switches toggles the choices.

21. Press **ENTER**

— The word **REFLCT** displays.

22. Press the **ENTER** switch.

— The current setting displays either a **YES** for **Reflect, Mirror Viewing** or **NO** for **Normal Viewing.**

— The **Reflect, Mirror Viewing Option** presents the digits in reverse for viewing through the truck mirrors.

23. Pressing the **LEFT** or **RIGHT** switches toggles the choices.

24. Press **ENTER**.

— The word **IDLE** displays.

25. Press the **ENTER** switch.

— The **Current Idle Time-Out Value** (***in seconds***) displays.

— This blanks the weight value *when no valid data is received*.

26. Use the **LEFT** or **RIGHT** switches to select a value between **5-15 seconds**.

27. With the appropriate selection displayed, press the **ENTER** switch.

— The word **INT** displays.

28. Press the **ENTER** switch, and the current setting displays **(20, 40, 60, 80, 100,** or **AUTO)**.

MANUAL PROGRAMMING MODE, CONTINUED

29. Press the **LEFT/RIGHT** switch to **increase/**decrease the digits' value.

— **AUTO** intensity automatically adjusts the brightness of the display dependent upon ambient light conditions. This setting will max at 80 in bright sunlight.

— *The numeric value represents the percentage of brightness. The larger the number, the brighter the display.*

30. With the desired setting displayed, press the **ENTER** switch.

— The word **COLON** displays.

31. Press the **ENTER** switch, and the current **COLON** setting displays.

32. Select **NO**.

— Only select **YES** if time output from 2500 series indicator is selected.

NOTE: *If selected incorrectly, display errors may occur.*

33. Press the **ENTER** switch.

— The word **TIME** displays.

34. Press **the ENTER** switch and the current setting displays.

35. Press **the LEFT** or **RIGHT** switches to select either **12hr, 24hr,** or **NO.**

36a. Select the Twelve (**12hr**) hour or the Twenty-four (**24hr**) hour setting.

a. Press the **ENTER** switch and the **current time** setting displays.
b. Use the **LEFT** or **RIGHT** switches to change the **hour**.
c. Press the **ENTER** switch when the hour is correct.
d. Use the **LEFT** or **RIGHT** switches to change the **minute**.
e. Press the **ENTER** switch when the minute is correct.
f. Press the **ENTER** switch.

36b. **Or** select **NO** and follow the steps on the next page.

— The word **DATE** displays.

NOTE: *Time output from 2500 series indicator will override internal time setting.*

MANUAL PROGRAMMING MODE, CONTINUED

37. Press the **ENTER** switch and the **date setting** displays.
38. Press the **LEFT** or **RIGHT** switches to select either **YES** or **NO.**
39. Press the **ENTER** switch.

— If **YES**, the **current month** displays.

a. Use the **LEFT** or **RIGHT** switches to change the **month**.
b. Press the **ENTER** switch when the month is correct.
c. Use the **LEFT** or **RIGHT** switches to change the **day**.
d. Press the **ENTER** switch when the day is correct.
e. Use the **LEFT** or **RIGHT** switches to change the **year**.
f. Press the **ENTER** switch when the year is correct.

— The word **TEMP** displays to set the option of whether the temperature displays or not.

40. Use the **LEFT** or **RIGHT** switches to select **YES** for displaying the temperature, or **NO** for not displaying the temperature.

— If **YES** is selected, then the ***optional*** temperature sensor must be installed.

41. Press the **ENTER** switch.
42. If **YES** Use the **LEFT** or **RIGHT** switches to select either **C** (Celsius) or **F** (Fahrenheit) temperature to be displayed.
43. Press the **ENTER** switch.

— The word **ANNUN** displays.

— **ANNUN** refers to **Annunciator,** which displays whether the scale is programmed for the following:

- *Pounds or Kilograms (lb/kg).*
- *Gross Weight or Net Weight (GR/NT).*
- *Automatic.*

44. Press the **ENTER** switch and the current **Annunciator** setting displays.
45. Press the **LEFT** or **RIGHT** switches to select **YES, NO, AUTO** or **SCALE.**

MANUAL PROGRAMMING MODE, CONTINUED

Select one of the following:

46a. If **YES** is selected, the word **MODE** displays.

a. Press the **ENTER** switch and the word **UNIT** displays.

b. Press the **ENTER** switch, and the current measure of **UNITS** displays.

c. Press the **LEFT** or **RIGHT** switches to select **kg** or **lb**.

d. Press the **ENTER** switch and the word **TYPE** displays.

e. Press the **ENTER** switch and the current setting displays.

f. Press the **LEFT** or **RIGHT** switches to select **TR1**, **TR2**, **GR**, or **NET**.

- **TR1** *mode displays* ***both*** *the* **Gross** *and* **Net Weights**.
- **TR2** *mode displays* ***neither*** *the* **Gross** *nor* **Net Weights**.

g. Observe the annunciator lights for the setting value.

46b. Selecting **NO** turns off the **Annunciator Display**.

46c. Selecting **AUTO** works only with **ID** set to **"00",** and changes according to the **ID CODE** sent from the instrument.

46d. Selecting **SCALE** offers a choice of scales **one (1) thru eight (8)** when connected to an FB3000 indicator.

a. Press the **LEFT** or **RIGHT** switches to select the **correct scale number**.

Multiscale ID Formats

No 1	No 2	No 3	No 4	No 5	No 6	No 7	No 8	
Code sent from indicator FB3000								DATA DISPLAYED
40	46	52	58	64	70	76	82	Lb. Gross
41	47	53	59	65	71	77	83	Lb. Net
42	48	54	60	66	72	78	84	Lb. Tare
43	49	55	61	67	73	79	85	Kg. Gross
44	50	56	62	68	74	80	86	Kg. Net
45	51	57	63	69	75	81	87	Kg. Tare

MANUAL PROGRAMMING MODE, CONTINUED

47. Press the **ENTER** switch and the word **TEST** displays.

48. Press the **ENTER** switch to display **DIGIT**.

Select one of the following:

49a. To test **LED digits**, press the **ENTER** switch and the *left-most digit* turns on.

a. Use the **LEFT** or **RIGHT** switches to display any of the six digits.

b. Press the **ENTER** switch to return to the **TEST** selections.

49b. To test the display intensity, press the **LEFT** or **RIGHT** switches to display **A2D**.

a. Press the **ENTER** switch.

b. Counts from the **A2D** for the light sensor are displayed.

c. To check **A2D operation**, increase and decrease light intensity on the annunciator panel between the **KG** and **GR** labels.

d. Press the **ENTER** switch to return to the **TEST** selections.

49c. To revert to the factory default settings, press the **LEFT** or **RIGHT** switches to display **DEFAULT**.

a. Press the **ENTER** switch and **ruSure** displays.

b. Press the **ENTER** switch to set defaults, or press the **LEFT** or **RIGHT** switches to return to the **TEST** selections.

c. The word **DEFAULT** displays, and the unit returns to the **TEST** selections.

50. Press the **PROG** switch to exit the **TEST** selections.

— **done** displays.

51. Press the **ENTER** switch to be finished with the setup, or use the **LEFT** or **RIGHT** switches to cycle back through the program steps.

— The word **STORE** displays.

52. Press the **PROG** switch to toggle the display between **STORE** and **CANCEL**.

MANUAL PROGRAMMING MODE, CONTINUED

- The **STORE** selection keeps the program changes.
- The **CANCEL** selection ***does not*** store the changes made.

53. Press the **ENTER** switch.

- The word **SAVED** flashes if **STORE** is selected, saving the changes, and then returning to the **Normal Mode**.
- All the changes are lost If **CANCEL** is selected, and then the display returns to the **Normal Mode**.

Section 4: Service & Maintenance

RECEIVE / WARNING

There is a **green LED Display** located by the switches on the PC Board that **verifies the data flow in the system.**

- The **LED blinks on and off continuously**, indicating it has a "**live connection**."
  - This indicates the **data is being received**.
- When the display is ***not receiving data*** from the indicator, it becomes "blank".
- If the display ***receives invalid data*** from the indicator, it becomes "blank".

Invalid data is data without a string terminator.

Proper string terminators are; CR (carriage return), LF (line feed), ETX (end of text), or EOT (end of transmission).

Section 5: Parts

MODEL 1601 – PARTS LIST

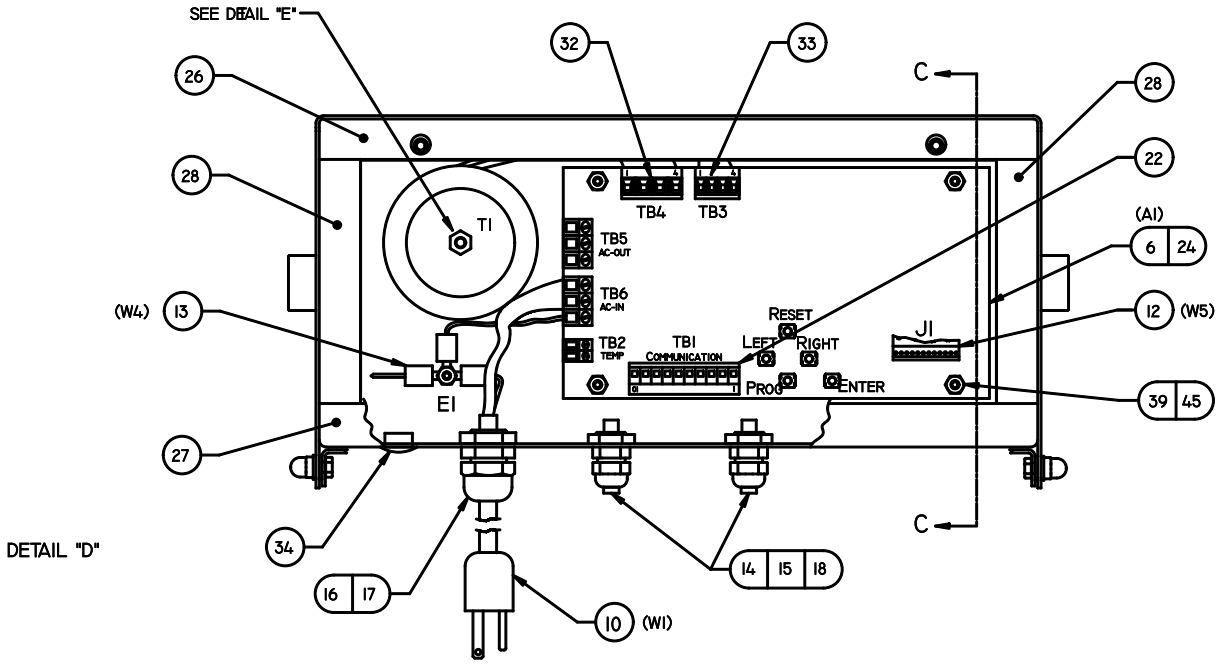
27720 FAIRBANKS PARTS LIST				
ITEM	PART NO.	QTY	DESCRIPTION	
1	27723	1	ENCLOSURE ASSY	
2	27722	1	FRONT PANEL ASSY	
3	27719	1	WINDOW	
4	27714	1	BRACKET, YOKE	
5	28040	1	PCB ASSY, LED DISPLAY	DS1
6	27416	1	PCB ASSY, CPU	A1
7				
8	27721	1	SPACER, FOAM	
9				
10	15435	1	POWER CORD ASSY	W1
11				
12	27106	1	CABLE ASSY	W5
13	27109	1	CABLE ASSY, GROUND	W4
14	17545	2	CONNECTOR, LIQUIDTIGHT .50	
15	15651	2	RING, "O" - FOR .50	
16	17534	1	CONNECTOR, LIQUIDTIGHT .75	
17	12342	1	RING, "O" - FOR .75	
18	12609	2	ROD, NYLON	
19				
20				
21	27727	1	OVERLAY, LEGEND 1601	
22	27432C	1	BLOCK, TERMINAL, PLUG 10 POS	XTB1
23				
24	11660	6	SPACER, HEX 6-32 THDS X .250 LONG	
25				
26	27715	1	GASKET, TOP	
27	27716	1	GASKET, BOTTOM	

MODEL 1601 – PARTS LIST, CONTINUED

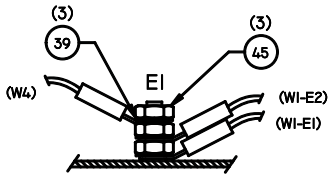
27720 FAIRBANKS PARTS LIST				
ITEM	PART NO.	QTY	DESCRIPTION	
28	27717	2	GASKET, SIDE	
29				
30				
31	28229	1	TRANSFORMER	T1
32	17521	1	PLUG,TERMINAL 4 POS .295 C-C	XTB4
33	27434C	1	PLUG,TERMINAL 4 POS .197 C-C	XTB3
34	14225	1	PLUG, HOLE .50 DIA	
35	11073	1	SCREW-CAP-HEX HD. 10-24 X 2.00	
36	11075	2	SCREW-CAP-HEX HD. 10-32 X .50	
37	11076	2	SCREW-CAP-HEX HD. 10-32 X .75	
38	10310	6	WASHER-FLAT 0.6IN	
39	11191	13	WASHER-LOCK-EXT.TOOTH NO. 6	
40	11119	1	WASHER-FLAT 0.10IN	
41	11495	6	WASHER-PLAIN (NYLON) NO. 10	
42	25715	2	WASHER-RETAINING ON10	
43	11092	1	WASHER-LOCK-MED-SPRING # 10	
44	11099	3	NUT-HEX 10-24	
45	11102	13	NUT-HEX 6-32	
46	15716	2	NUT,THREADLOCK ACORN 10-32	
47	15745	2	KNOB	
48	12621	2	WASHER, RETAINER	
49	12103	4	FOOT	
50	11134	4	SCREW-MACH-PH-PHIL 8-32 X .31	
51				
52	11226	1	NAMEPLATE	
53	27726	1	NAMEPLATE-DATA FORTAG ON SH 1	
54	51157	1	MANUAL	
55	13486	1	CONNECTOR KIT, DB9 ACC 334	
*	27428	2	Fuse 2 amp	F1, F2
*	27429	1	Fuse 6.3 amp	F3

* = Parts Not Shown

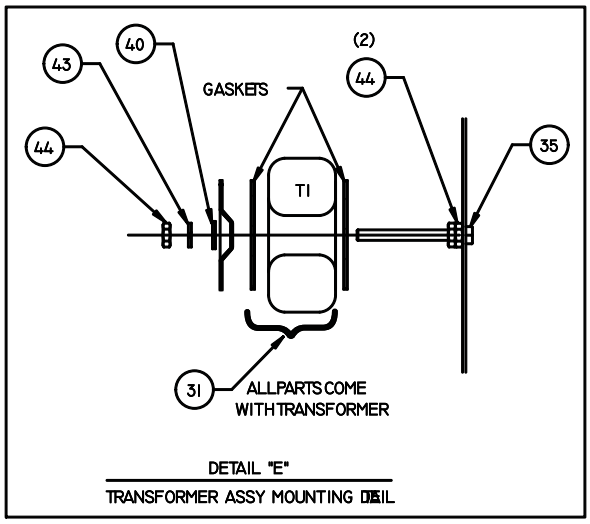
MODEL 1601 – PARTS DIAGRAM



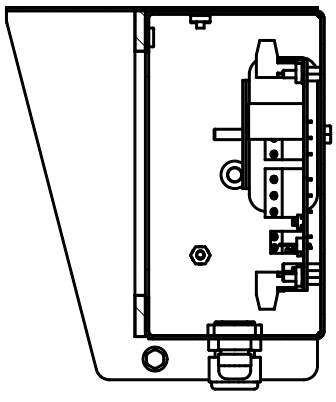
VIEW WITH FRONT PANEL REMOVED



DETAIL "D"
SCALE 2/1



DETAIL "E"
TRANSFORMER ASSY MOUNTING DETAIL



SECTION C-C

1.5" REMOTE DISPLAY ASSY
1601 DISPLAY
27720

MODEL 1601 – WIRING CHART

WIRE NO.	FROM TERMINATION	NOTE	WIRE ITEM #	COLOR	GAGE	LGTH	RTE	TO TERMINATION	NOTE	REMARKS
1	WI-BR	-	10	BR	-	-	-	TB6-1	3	AC
2	WI-BL	-	10	BL	-	-	-	TB6-2	3	ACC
3	WIE1	-	10	G/Y	-	-	-	E1	3	CHASSIS GND.
4	WIE2	-	10	G/Y	-	-	-	E1	3	CHASSIS GND.
5	WIE2	-	10	G/Y	-	-	-	TB6-3	3	GND.
6	TI-W	-	31	W	-	-	-	TB4-1	3	0V
7	TI-W	-	31	W	-	-	-	TB4-2	3	0V
8	TI-B	-	31	B	-	-	-	TB4-3	3	110 VAC
9	TI-B	-	31	B	-	-	-	TB4-4	3	110 VAC
10	TI-BL	-	31	BL	-	-	-	TB3-1	3	0V
11	TI-BL	-	31	BL	-	-	-	TB3-4	3	20V/8A
12										
13										

WIRING CHART
27720D2

MODEL 1605 PARTS LIST

Item	Part No.	Qty	Description
1	26571	1	Enclosure Assembly
2	26568	1	Front Panel Assembly
3	26569	1	Window
5	27212	2	LED Display PCB Assembly
6	27416	1	CPU PCB Assembly
7	27531	1	Annunciator PCB Assembly
8	27721	1	Foam Spacer
10	15435	1	Power Cord Assembly
11	27105	2	Cable Assembly
12	2710	1	Cable Assembly
13	27109	1	Ground Cable Assembly
14	17545	2	Liquid Tight Connector 0.50
15	15651	2	O-Ring For 0.50
16	17534	2	Liquid Tight Connector 0.75
17	12342	2	O-Ring For 0.75
18	12609	3	Nylon Rod
20	26570	1	Access Door
21	27107	1	Legend Overlay
22	27432C	1	Terminal Block Plug 10 Position
24	11660	4	Hex Spacer 6-32 THDS x 0.25 Long
26	26572	1	Top Gasket
27	16573	1	Bottom Gasket
28	16574	2	Side Gasket
30	26563	1	Transformer Mounting Plate
31	27656	1	Transformer
32	17521	1	Terminal Plug 4-Pos 0.295 C-C
33	27434C	1	Terminal Plug 4-Pos 0.197 C-C
34	14225	1	Hole Plug 0.50 Dia.
36	11075	6	Screw-Cap-Hex Hd. 1032 x 0.50
37	11076	4	Screw-Cap-Hex Hd. 1032 x 0.75

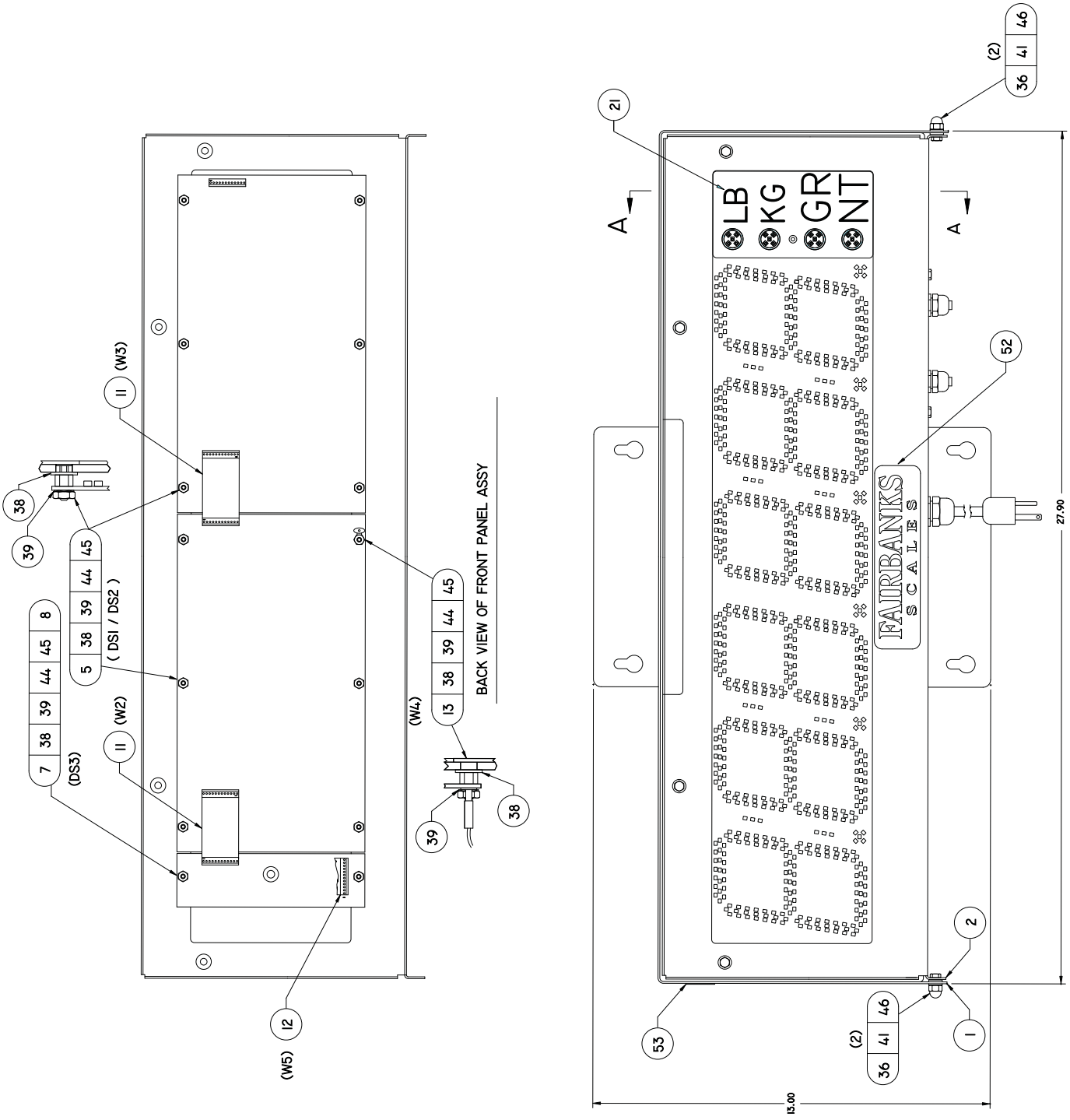
MODEL 1605 PARTS LIST, CONTINUED

Item	Part No.	Qty	Description
38	10310	14	Washer-Flat
39	11191	25	Washer-Lock-Ext. Tooth No. 6
41	11495	12	Washer-Plain (Nylon) No. 10
42	25715	8	Washer-Retaining No. 10
44	17597	14	Spacer 6-32 x 0.19
45	11102	25	Hex Nut 6-32
46	15716	2	Thread-Lock Acorn Nut 10-32
52	11224	1	Nameplate
53	27108	1	Nameplate
*	51157	1	Manual
*	13486	1	Connector Kit, DB9 ACC 334
*	27428	2	Fuse 2 amp F1, F2
*	27429	1	Fuse 6.3 amp F3

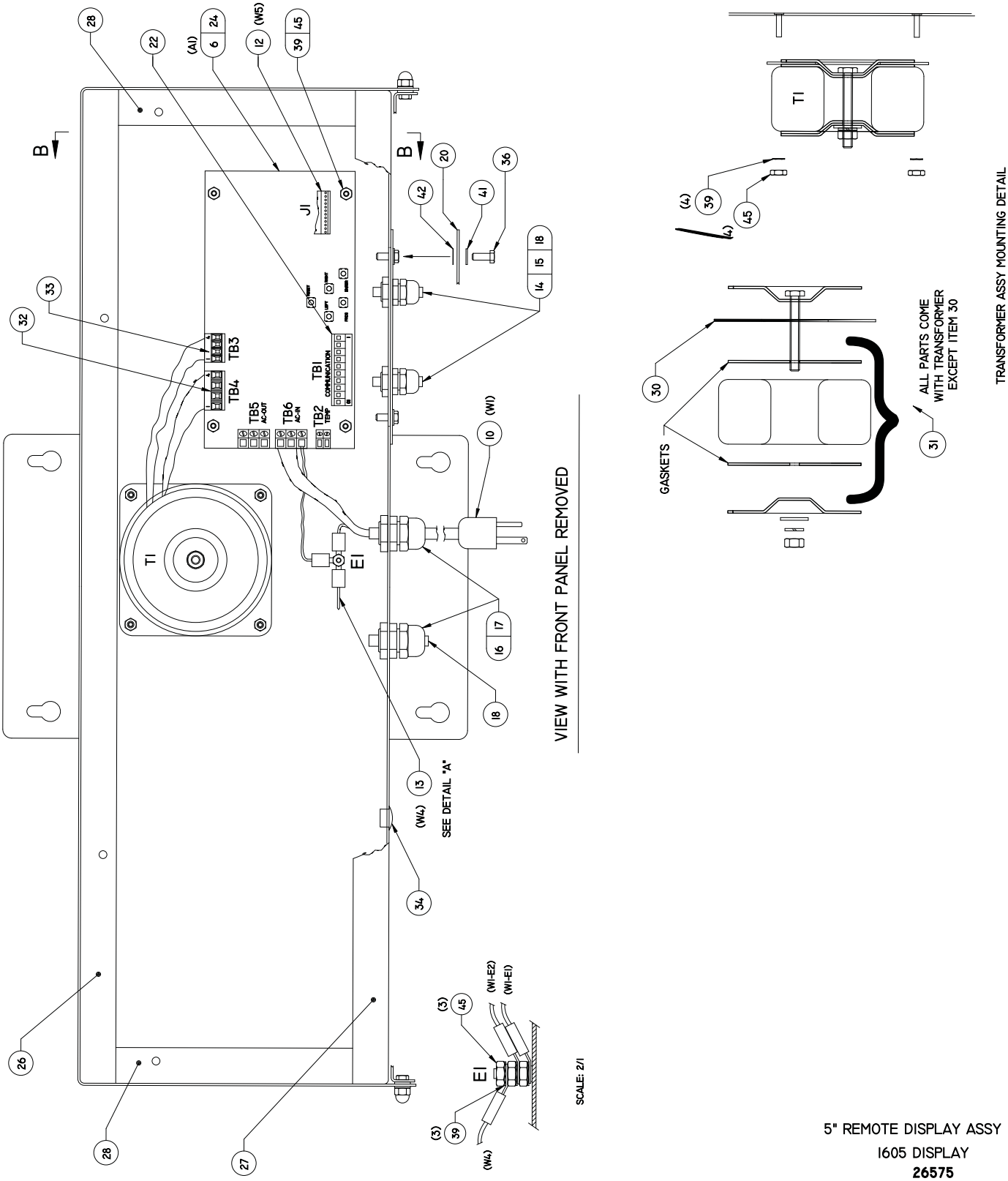
* Not pictured in diagram(s).

MODEL 1605 PARTS DIAGRAMS

1605 Remote Display Assembly

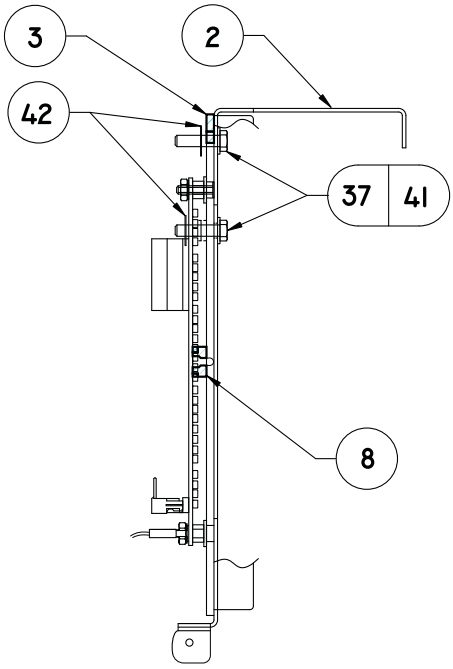


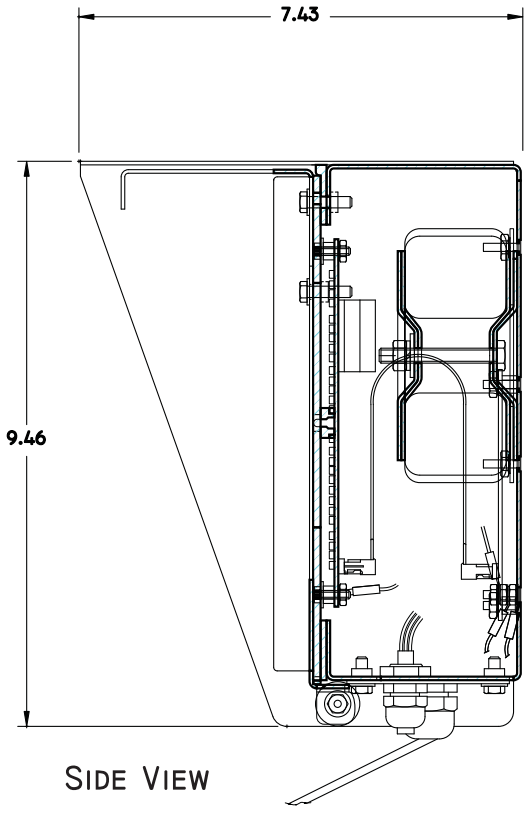
1605 Remote Display Assembly, Continued



5" REMOTE DISPLAY ASSY
1605 DISPLAY
26575

1605 Remote Display Assembly, Continued





SIDE VIEW

5" REMOTE DISPLAY ASSY
1605 DISPLAY
51157-1

1605 Wiring

COLOR	FROM	TO	DESCRIPTION
BR	W1-BR	TB6-1	AC
BL	W1-BL	TB6-2	ACC
G/Y	W1-E1	E1	CHASSIS GND
G/Y	W1-E2	E1	CHASSIS GND
G/Y	W1-E2	TB6-3	GND
BLK	T1-BLK	TB4-1	110 VAC
BRN	T1-BRN	TB4-2	110 VAC
WHT	T1-WHT	TB4-3	0 V
ORG	T1-ORG	TB4-4	0 V
YEL	T1-YEL	TB3-1	0 V
BLU	T1-BLU	TB3-2	0 V
GRY	T1-GRY	TB3-3	15 V / 2.67 A
RED	T1-RED	TB3-4	15 V / 2.67 A

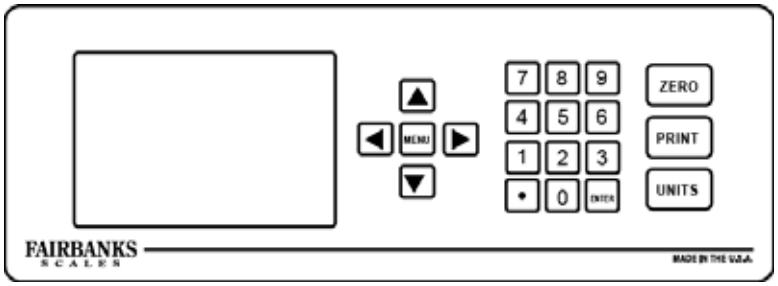
Appendix I: FB350 Programming

With the remote display **ID** set to **00**, set the **FB350** parameters to the following.

Motion Stability Time step 115	=	.2 or less
Update Rate step117	=	.5 or longer
Parity step 202	=	None
Stop Bit step 203	=	One (1) Bit
Handshake step 204	=	None
Sent step 210	=	Continuous

Appendix II: 2500 Series Programming

Follow these steps to configure the **2500 Instrument** so it interfaces with the **1600 Series Display.**



1. Press **MENU** button to open the **Configuration Menu**.
2. Using the **UP** and **DOWN** arrow buttons, select **COMMUNICATION**.
3. Using the **UP** and **DOWN** arrow buttons, select **REMOTE DISPLAY**.
4. Using the **UP** and **DOWN** arrow buttons, select **GROSS ONLY**.

   ✓ *If using the **2500 Indicator** **TIME OUTPUT** setting under the Remote Display menu selection the **1605** time display will be overridden, and the **2500** time will be displayed.*

   ✓ *If **RF LINK TO COM3** is selected ensure **COM3** is set to **COM PORT OFF** in the **DEVICES** menu.*

5. Press **MENU** button repeatedly to exit.

NOTE: *For more information about programming the **2500 Series Instrument**, see one of the following manuals:*

- **50525 – IND-R2500-F1 IND-HR2500-F1 Indicators Service Manual**
- **50697 – IND-2500-F2, DF2, IND-HR2500-F2, DF2 Indicators Service Manual**
- **50698 – IND-HR2500-QF2 Indicator Service Manual**
- **50740 – IND-HR2500-QF1 Indicator Service Manual**

NOTE: *If using a custom string from the **2500** make sure that leading zeroes are disabled in the weight string to prevent all digits from lighting.*

1600 Series

LED REMOTE DISPLAY

DOCUMENT 51157

Manufactured by Fairbanks Scales, Inc.
821 Locust
Kansas City, Missouri 64106
www.fairbanks.com