THURMAN SCALE

Installation/ Operator Manual

218 Series
LED Remote Display

Models: 218, 218RF, 218T Remote Display, 778 Traffic Light

51167
Revision 6 1/2012

218 Series LED Remote Display

DOCUMENT 51167

Manufactured by **Thurman Scale Inc.**
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Amendment Record

Created	09/2007	
Revision 1	09/2007	Documentation release.
Revision 2	01/2008	Updated specifications and steps.
Revision 3	04/2009	Software Enhancements, added INTELL feature.
Revision 4	10/2009	Updated parts list.
Revision 5	09/2010	Added wiring and parts for 218T and 778.
Revision 6	1/2012	Added RF Signaling information.

Disclaimer

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Section 1: General Information

1.1. INTRODUCTION

The **Thurman 1600 Series** is an intelligent L.E.D. remote display.

- The bright red L.E.D. display is easily viewed from distances of **up to 75 feet** for the **27741**, and up to **300 feet** for the **27745.**
  - The unit is equipped with an **Adjustable Intensity Control**
- It is housed in a weather-tight enclosure for inside or outside use.
  - The **Reflect Mode** displays the weight information correctly in a mirror.
  - A hooded shield eliminates glare and protects it from debris and weather.
  - There are no moving parts within the Remote Display.
  - The unit can detect the data communication protocols of nearly every scale manufacturer's instruments with a **Programmable Learning Mode.**
- The **218RF Remote Display** is installed with a **Radio Frequency (RF) Controlled Modem** and comes with a **Stand-alone RF Modem** for the transmitting peripheral device.
  - The system allows for wireless communication between the remote display and a weighing instrument or computer.
- The **218T Traffic Light** can be configured to work with dry contact relay closure or with serial data from instruments such as FB3000. Refer to the appropriate instrument manual for details.
- The **778 Stop Light** is a separate stand-alone unit that interfaces with a Remote Display and the Indicator for a simultaneous **GO/STOP** message.

1.2. SPECIFICATIONS

Display Types	• **218 (27741)** — One-and-a-half inch (1.5") High Intensity LED Display  • **218 (27745)** — Five inch (5") High Intensity LED Display — Six (6) digits with seven (7) segments — Includes decimal and colon  • **218RF Remote Display with RF Interface (31850)** — Comes with a factory-installed internal RF Transmitter/Receiver, and a stand-alone RF Transmitter/Receiver. • The system allows for wireless communication between the remote display and a weighing instrument or computer. • **218T (29774)** — 5 inch green dot for **GO** — 5 inch red X for stop  • **778 Stop Light (29790)** — Green circle for **GO**. • Five inch (5") red "X" for **STOP**. 
Additional Display Features	— Time — Lb. or Kg displays — Date — GR or NT displays — Temperature (*optional*)
Communication Interface	• RS232, 50 feet maximum • 20mA Current Loop, 1000 ft. maximum • Active or Passive • RS485, 4000 ft. max • Dry contact relay closure for traffic lights
Frequency Range	**902-928 MHz**
Program Setup	Automatic or Manual
Viewing Distance	• **27741** – Up to 75 feet • **27745** – Up to 300 feet
Enclosure	• **218 (27745) – NEMA 3** • **218 (27741) – NEMA 4X**
Temperature Range	-29C to 49C / -20F to 120F
Power	115VAC 1A Max

Section 2: Company Service 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.

2.1.1. 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.

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.

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

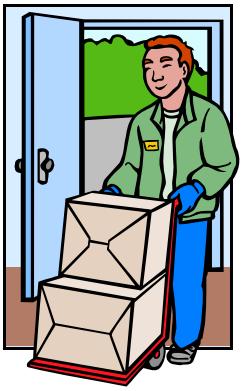
2.2. GETTING STARTED

2.2.1. 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.

2.2.2. 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.
- Keep equipment away from magnetic material or other instruments which use magnets in their design.

2.2.3. 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.

2.3. 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.

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.

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

- Electrical connections other than those specified may not be performed, and **physical alterations to the installed unit** (holes, etc.) **are not allowed**.

Section 3: Installation

3.1. INSTALLING THE 1605 REMOTE DISPLAY

3.1.1. Introduction

The **218 Series Display** comes with a mounting bracket on the back of the enclosure.

- 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.
- The **Display** can be wall mounted or, using **ACC 1400**, mounted to a pole.
- The **778 Stop Light** can be pole mounted using **Slip-fitter Accessory**, or wall mounted using **Wall Mount Bracket**.

3.1.2. Installation

1. Mount the display in its proper designated location.
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.

3.2. WIRING THE REMOTE DISPLAY

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**.

3.2.1. Wiring Configuration

A. 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)

B. 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)

3.2.1. Wiring Configuration, Continued

C. 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)

D. Indicators with RS485 Output

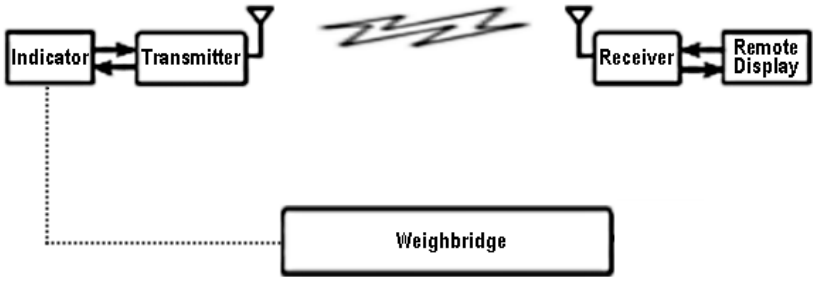
INDICATOR	INTERFACE ASSEMBLY	TB1
	(+) 15 VDC	(1)
GND	GND	(2)
	RS232 Rx	(3)
	RS232 Tx	(4)
RS485A	RS485A	(5)
RS485B	RS485B	(6)
	C-Loop (+)	(7)
	C-Loop (—)	(8)

3.3. INSTALLING THE 218RF REMOTE DISPLAY

3.3.1. Introduction

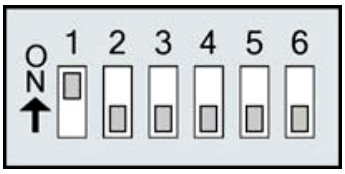
The RF Transmitter/Receiver allows the 1605 (p/n 30981) to display the weighment wirelessly.

- In ideal conditions, the RF Signal transmits up to one thousand feet (1000').



3.3.2. Installing the REMOTE DISPLAY RF Antenna

1. Mount the 1605RF Remote Display in a similar manner as the model 1605.
   - The Remote Display RF Antenna components are internal, and are factory preinstalled and wired..
2. Remove the **four (4) cover screws** on the RF Transmit/Receiver inside 1605 Remote Display.
3. Set the **switch positions** on both RF Transmit/Receiver to those like the image below.
   - **Switch One** is the only one in the **ON** position. **All others** are **OFF**.



3.3.2. Installing the REMOTE DISPLAY RF Antenna, Continued

4. Program the **communication settings** on both the Indicator and the Remote Display RF Transmitter/Receivers to match the parameters shown below.

Baud Rate	9600
Data Bits	8
Stop Bits	1
Parity	None

NOTE: *Use these settings ONLY with the* **1605RF Remote Display**

5. Replace the **cover**, fastening it with the **screws**.
6. Plug in the **DB9 cable** from the RF Antenna into the Remote Display.

3.3.3. Installing the INDICATOR RF Antenna

1. Set the **switch positions** on both RF Transmit/Receivers to those in **Step 3** above.
2. Determine the best Indicator RF Antenna position.
   - This will be in a direct line-of-sight to the Remote Display.
   - Follow the distance guidelines shown below:

Indoor/Urban Range	**Up to 300 ft.**
Outdoor RF Line-of-sight Range	**Up to 1000 ft.**

3. Position the Antenna in a secure, permanent and protected place.
   - If the signal is blocked between the two antennas by passing vehicles or other obstructions, the transmitted data will be incomplete or corrupted.

3.3.3. Installing the INDICATOR RF Antenna, Continued

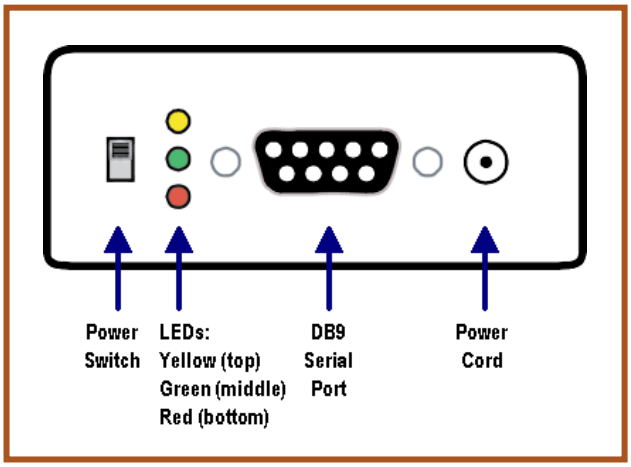
4. Hold up the Antenna in its proper position on the wall, then mark the drill holes with a pencil.
5. Drill the appropriate size holes for mounting the external RF Antenna.
6. If needed, insert the wall anchor.
7. Secure the Antenna into position with the four screws.
8. Plug in the **DB9 cable** from the RF Antenna to the Indicator.

3.3.4. Powering Up for RF Unit Test

1. **Apply power** to the Remote Display and to the Indicator.
2. Move the External RF Transmitter/Receiver Power Switch to **ON** (up).

The LEDs on the External RF Transmitter/Receiver indicates the following:

Yellow	Serial Data Out (to host)
Green	Serial Data In (from host)
Red	Power/TX Indicator



- The red light is on when the unit is powered.
- The green LED pulses on/off briefly during RF transmission.

3.4. TRAFFIC LIGHT WIRING

The 218T is shipped with the traffic light connected to the CPU PCB. The cable from the traffic light must be disconnected from the CPU PCB and connected as per the following charts.

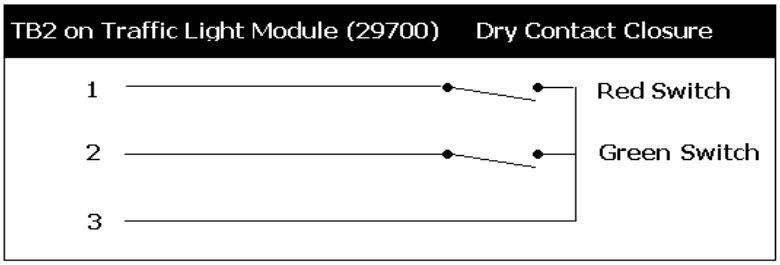
A. Wiring when connected to ACC 702T Manual Switch (30006).

TB2 ON TRAFFIC LIGHT MODULE (29700)	TB1 ACC 702T
1	3
2	2
3	1

B. Wiring when connected to ACC 703 Relay Box (13170).

TB2 ON TRAFFIC LIGHT MODULE (29700)	TB5 ACC 703
1	3
2	2
3	1

C. Wiring when connected to non-specified relay or switch.



3.5. INSTALLING THE OPTIONAL TEMPERATURE PROBE

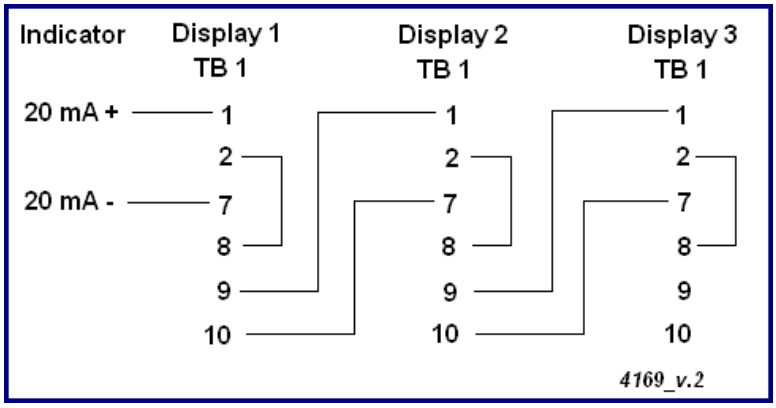
1. Insert the optional **Temperature Probe** into the open **Watertight Gland,** tightening the threads until it is snug.
2. Connect the **two (2) Temperature Probe wires** to **TB2.**
   - Connections are not polarity sensitive (**+** and **–**), so wires can attach to either terminal.

3.6. INSTALLING MULTIPLE DISPLAYS

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

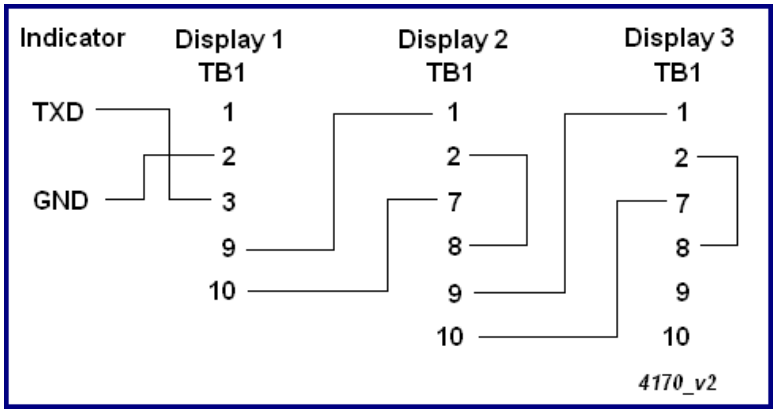
3.6.1. 20mA Configuration

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



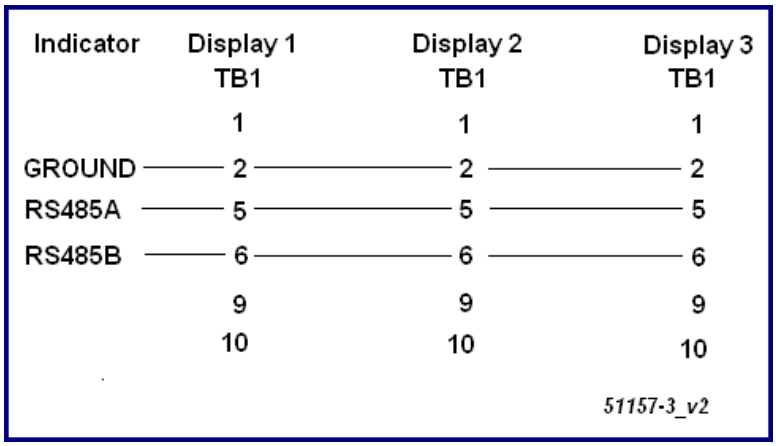
3.6.2. RS232 Configuration

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



3.6.3. RS485 Configuration

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



3.7. STARTING UP THE REMOTE DISPLAY

1. Turn on the Remote Display.

- The Remote Display first displays the **Program** and **Revision Number,** then it proceeds through a counting sequence.
- The intensity of the light changes.
- The display blanks momentarily, then shows the weight value sent by the indicator.

The warm-up sequences are complete, and the Remote Display is ready.

Section 4: Programming

4.1. ACCESSING THE CONTROL BUTTONS

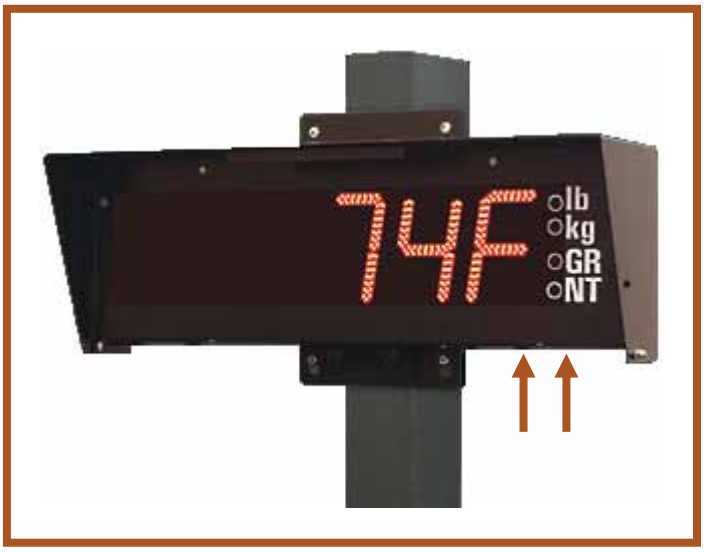
Programming the Remote Display to perform its daily functions requires pressing the six (6) control buttons on the PCB, located inside the unit.

4.1.1. 218 Desktop Remote Display

2. Remove the **two (2) screws** on the **front** of the Display Panel.
3. Carefully drop down the display front to access the Control Buttons

4.1.2. 2185 Remote Display

1. Remove the **four (4) screws** on the **bottom**, opening the access panel.



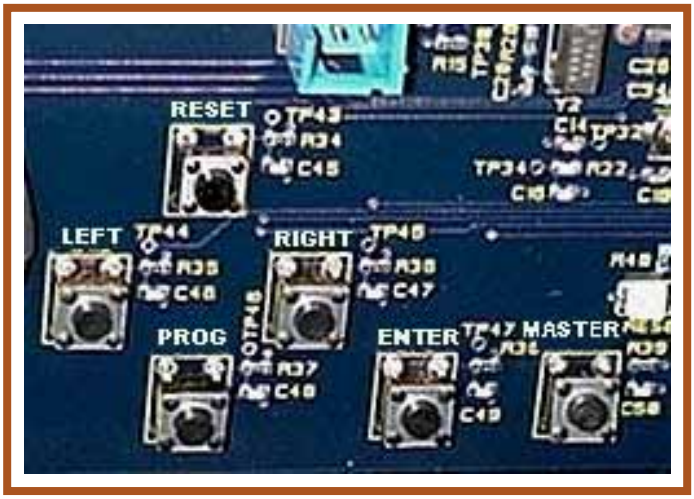
4.2. PROGRAMMING WITH THE BUTTONS

- 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.

4.2.1. PCB Switch Functions

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.

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.

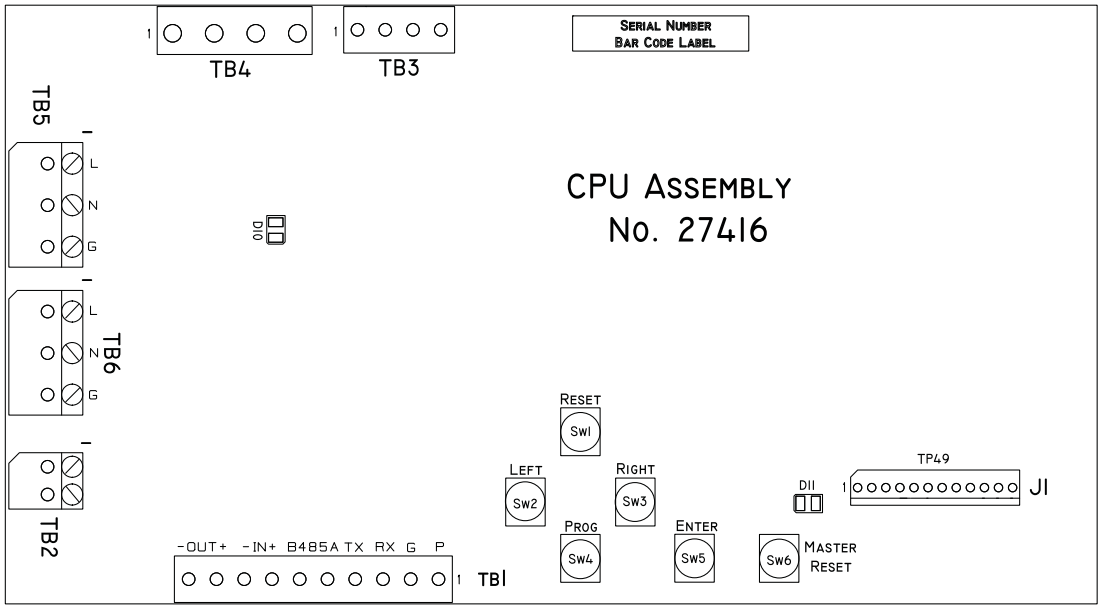
S6 MASTER RESET

Issues a **Hardware Reset**.

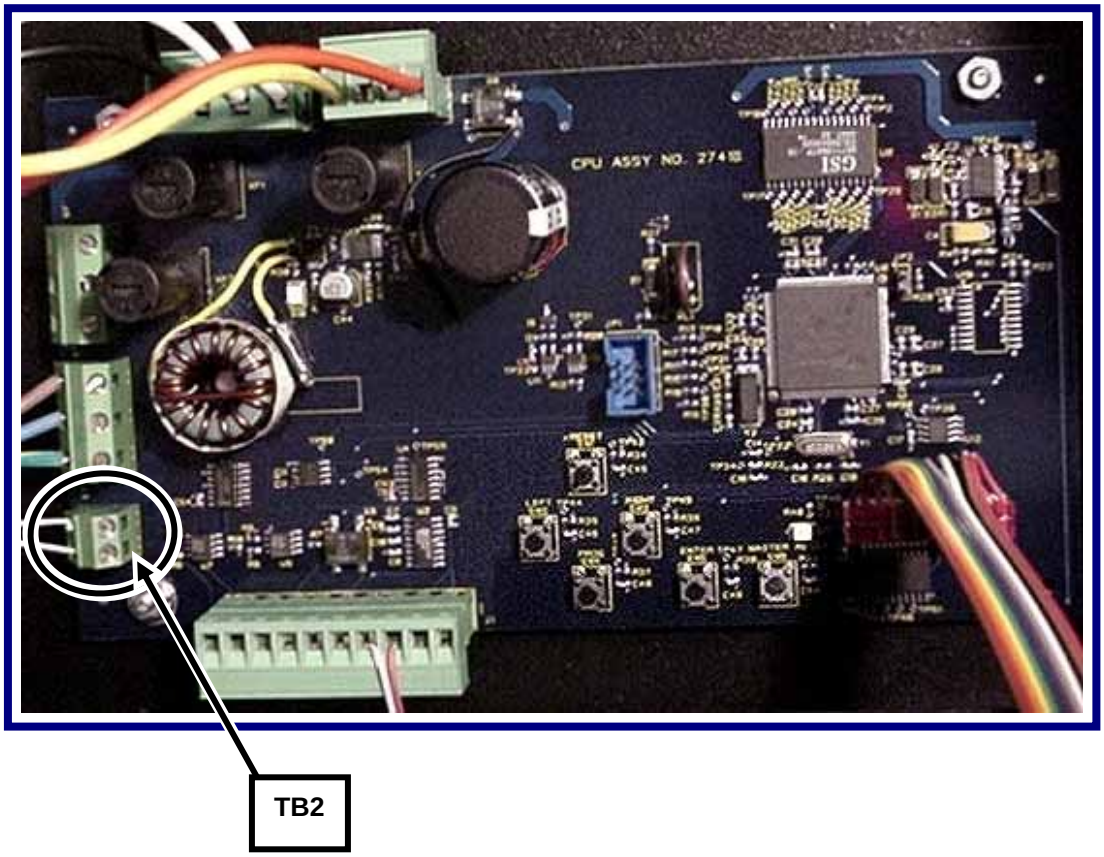
- Currently the same as pressing the **RESET** button.

See the following page for the diagram and accompanying picture.

4.2.1. PCB Switch Functions, Continued



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



NOTE: *Previous version PCB Card drawing is shown in* **Appendix III.**

4.3. 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.

4.3.1. 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.

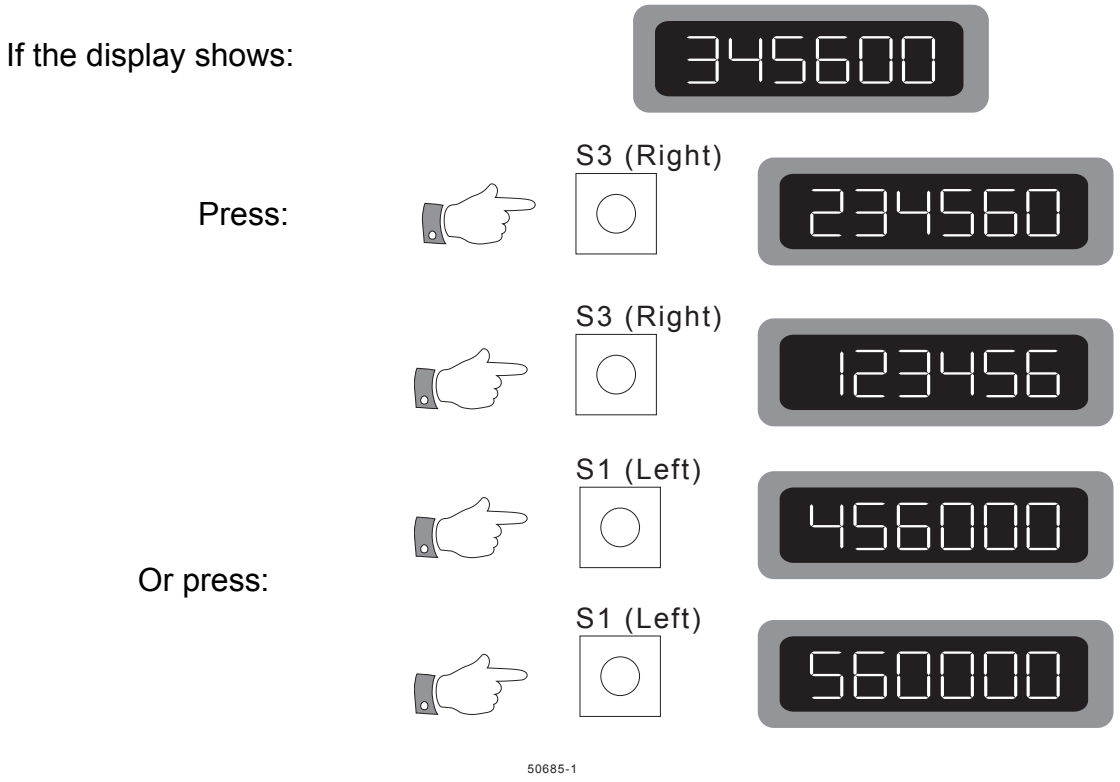
When the Automatic Programming is complete and successful, the current weight is displayed.

4.3.2. 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.



4.3.3. Display Output Default Setups

Thurman Remote Display Output has the following default setups:

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

4.3.4. 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**.

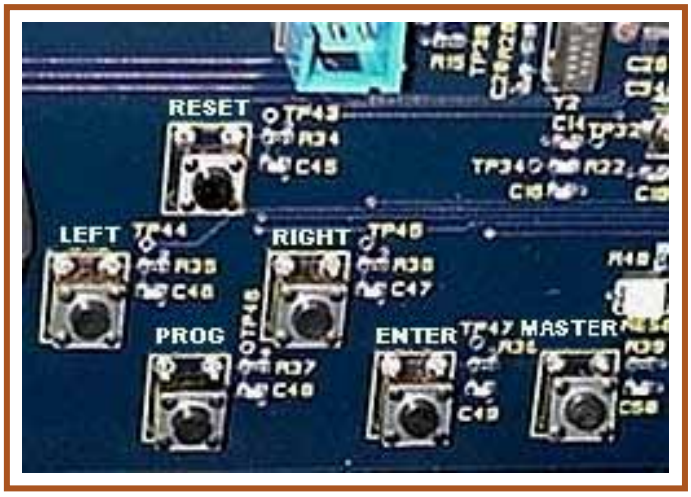
- **300**
- **600**
- **1200**
- **2400**
- **4800**
- **9600**
- **19,200**
- **38,000**
- **57,600**
- **115,200**

6. Press the **ENTER** switch to select the appropriate one.
7. When the abbreviation **CHAR** displays, press the **ENTER** switch.
   - Either a **seven** (**7**) or an **eight** (**8**) display for the current **Data Bits Setting**.
8. Use the **LEFT** or **RIGHT** switches to toggle and select the correct one.
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.

- **NON**
- **EVEN**
- **ODD**

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

4.3.4. Manual Programming Mode, Continued



13. The abbreviation **ID** displays, signifying "***Identification***."
    - The **ID FILTER** sorts data from a **Data String.**
    - 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***.
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.
18. With the appropriate choice displayed, press the **ENTER** switch.

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

- 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).
    - Press the **LEFT** or **RIGHT** switch to toggles the choices.

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

4.3.4. Manual Programming Mode, Continued

20. Press **ENTER.**
    - The word **REFLECT** displays.
21. 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.
22. Pressing the **LEFT** or **RIGHT** switches toggles the choices.
23. Press **ENTER**.
    - The word **IDLE** displays.
24. Press the **ENTER** switch.
    - The **Current Idle Time-Out Value** (***in seconds***) displays.
    - This blanks the weight value *when no valid data is received*.
25. Use the **LEFT** or **RIGHT** switches to select a value between **5-15 seconds**.
26. With the appropriate selection displayed, press the **ENTER** switch.
    - The initials **INT** displays.
27. Press the **ENTER** switch, and the current setting displays **(20, 40, 60, 80, 100, and AUTO).**
28. 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.*
29. With the desired setting displayed, press the **ENTER** switch.
    - The word **COLON** displays.

4.3.4. Manual Programming Mode, Continued

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

31. Select **NO**.

— Only *select* **YES** if time output from IS3000 series indicator is selected.

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

32. Press the **ENTER** switch.

— The word **TIME** displays.

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

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

Select one of the following:

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

— The word **DATE** displays.

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

— The word **DATE** displays.

— a. Press the **ENTER** switch and the **DATE SETTING** displays.

NOTE: *Time output from* **IS-3000 Series Indicator** *will override internal time setting.*

4.3.4. Manual Programming Mode, Continued

35. Press the **LEFT** or **RIGHT** switches to select either **YES OR NO.**
36. 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.
37. 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.
38. Press the **ENTER** switch.
39. If **YES**, use the **LEFT** or **RIGHT** switches to select either **C** (***Celsius***) or **F** (***Fahrenheit***) temperature to be displayed.
40. 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.*

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

4.3.4. Manual Programming Mode, Continued

Select one of the following:

43A. 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.

43B. Selecting **NO** turns off the **ANNUNCIATOR DISPLAY**.

43C. Selecting **AUTO** works only with **ID** set to **"00",** and changes according to the **ID CODE** sent from the instrument.

43D. Selecting **SCALE** offers a choice of scales **ONE (1) THRU EIGHT (8).** When connected to an indicator with 8 scale outputs with codes from chart below

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 MULTISCALE INDICATOR								**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

4.3.4. Manual Programming Mode, Continued

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

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

Select one of the following:

46A. 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.

46B. 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.

46C. 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.

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

– **DONE** displays.

48. 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.

4.3.4. Manual Programming Mode, Continued

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

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

50. Press the **ENTER** switch.

- The word **SAVED** flashes if **STORE** is selected, saving the changes, and then returning to the **Normal Mode**.

IMPORTANT NOTE: *All the changes are lost If* **CANCEL** *is selected, and then the display returns to the* **Normal Mode.**

Section 5: Service & Maintenance

5.1. 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).

5.2. RF TRANSMITTER/RECEIVER WILL NOT TRANSMIT

If the Indicator does not detect the RF Transmitter/Receiver, the problem may be in the **Power Adapter.**

- The red power LED on the RF Transmitter/Receiver will be on.
- When a message is transmitted to the Remote Display, the yellow and green lights do not flicker simultaneously.

The solution is to replace the **RF Transmitter/Receiver Power Adapter**.

- The adapter output is **9VDC at 500mA**.

5.3. VOLTAGE TEST

Unloaded voltage measurement for the 20 mA loop.

MODEL	TB1-1 TO TB1-2
1605/ 1605T/ 1605RF	23 VDC
1601	14.5 VDC

Section 6: Parts

6.1. 1.5" REMOTE DISPLAY – WIRING CHART

WIRE NO.	FROM		WIRE				RTE	TO		REMARKS
	TERMINATION DATE		ITEM #	COLOR	GAGE LGTH			TERMINATION NOTE		
1	WI-BR	-	10	BR	-	-	-	TB6-1	3	AC
2	WI-BL	-	10	BL	-	-	-	TB6-2	3	ACC
3	WI-E1	-	10	G/Y	-	-	-	E1	3	CHASSIS GND.
4	WI-E2	-	10	G/Y	-	-	-	E1	3	CHASSIS GND.
5	WI-E2	-	10	G/Y	-	-	-	TB6-3	3	GND.
6	T1-W	-	31	W	-	-	-	TB4-1	3	OV
7	T1-B	-	31	W	-	-	-	TB4-2	3	OV
8	T1-B	-	31	B	-	-	-	TB4-3	3	110 VAC
9	T1-B	-	31	B	-	-	-	TB4-4	3	110 VAC
10	T1-BL	-	31	BL	-	-	-	TB3-1	3	0V
11	T1-BL	-	31	BL	-	-	-	TB3-4	3	20V/8A

6.2. 1.5" REMOTE DISPLAY – PARTS LIST

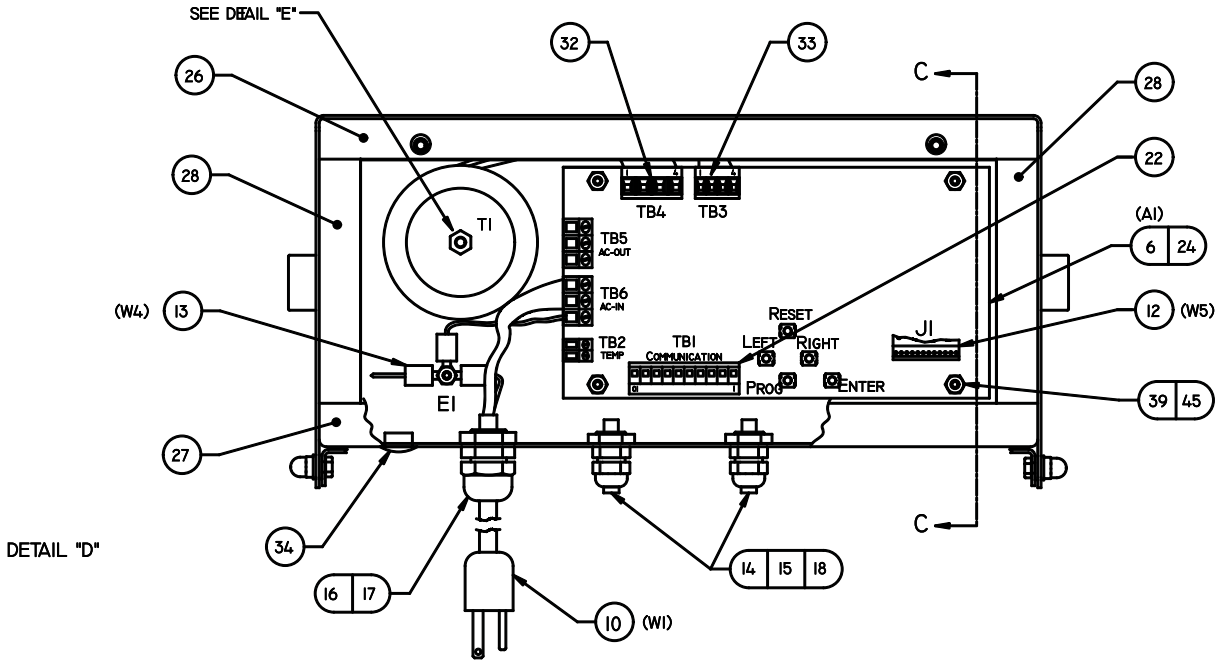
ITEM	PART NO.	QTY	DESCRIPTION
1	27723	1	Enclosure Assembly
2	27722	1	Front Panel Assembly
3	27719	1	Window
4	27714	1	Yoke Bracket
5	28040	2	LED Display PCB Assembly
6	27416	1	CPU PCB Assembly
8	27721	1	Foam Spacer
10	15435	1	Power Cord Assembly
12	27106	1	Cable Assembly
13	27109	1	Ground Cable Assembly
14	17545	2	Liquid Tight Connector 0.50
15	15651	2	O-Ring For 0.50
16	17534	1	Liquid Tight Connector 0.75
17	12342	1	O-Ring For 0.75
18	12609	2	Nylon Rod
21	27727	1	Legend Overlay
22	27432C	1	Terminal Block Plug 10 Position
24	11660	6	Hex Spacer 6-32 THDS x 0.25 Long
26	27715	1	Top Gasket
27	27716	1	Bottom Gasket

6.2. 1.5" REMOTE DISPLAY – PARTS LIST, CONTINUED

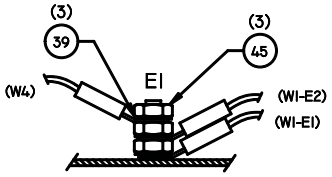
EM	PART NO.	QTY	DESCRIPTION
28	27717	2	Side Gasket
31	28229	1	Transformer
32	17521	1	Terminal Plug 4-Pos 0.295 C-C
33	27434C	1	Terminal Plug 4-Pos 0.197 C-C
34	14225	1	Hole Plug 0.50 Dia.
35	11073	1	Screw-Cap-Hex Hd. 10-24 x 2.00
36	11075	2	Screw-Cap-Hex Hd. 10-32 x 0.50
37	11076	2	Screw-Cap-Hex Hd. 1032 x 0.75
38	10310	6	Flat Washer No. 6
39	11191	13	Lock Washer Ext. Tooth No. 6
40	11119	1	Flat Washer No. 10
41	11495	6	Plain Washer (Nylon) No. 10
42	25715	2	Retaining Washer No. 10
43	11092	1	Lock-Med-Spring Washer No. 10
44	11099	3	Hex Nut 10-24
45	11102	13	Hex Nut 6-32
46	15716	2	Thread Lock Acorn Nut 10-32
47	15745	2	Knob
48	12621	2	Retainer Washer
49	12103	4	Foot
50	11134	4	Mach-Ph-Phil-Screw 8-32 x 0.31
52	15751	1	Nameplate
53	27732	1	Data Nameplate
54	51167	1	Manual
55	13486	1	ACC 334 Connector Kit, DB9
*	27428	2	Fuse 2 amp F1, F2
*	27429	1	Fuse 6.3 amp F3

* ***= Parts Not Shown***

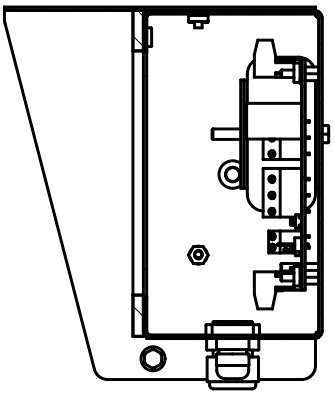
6.3. 1.5" REMOTE DISPLAY – PARTS DIAGRAM



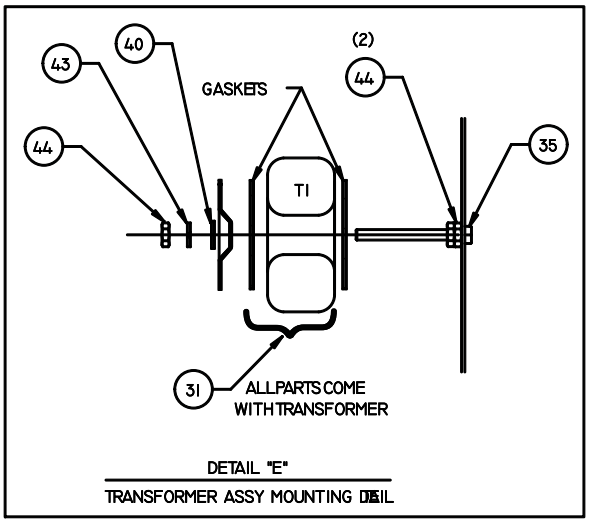
VIEW WITH FRONT PANEL REMOVED



DETAIL "D"
SCALE 2/1



SECTION C-C



DETAIL "E"
TRANSFORMER ASSY MOUNTING DETAIL

6.4. 5" REMOTE DISPLAY – WIRING CHART

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	OV
ORG	T1-ORG	TB4-4	OV
YEL	T1-YEL	TB3-1	OV
BLU	T1-BLU	TB3-2	OV
GRY	T1-GRY	TB3-3	15V / 2.67A
RED	T1-RED	TB3-4	15V / 2.67A

6.5. 5" REMOTE DISPLAY PARTS LIST

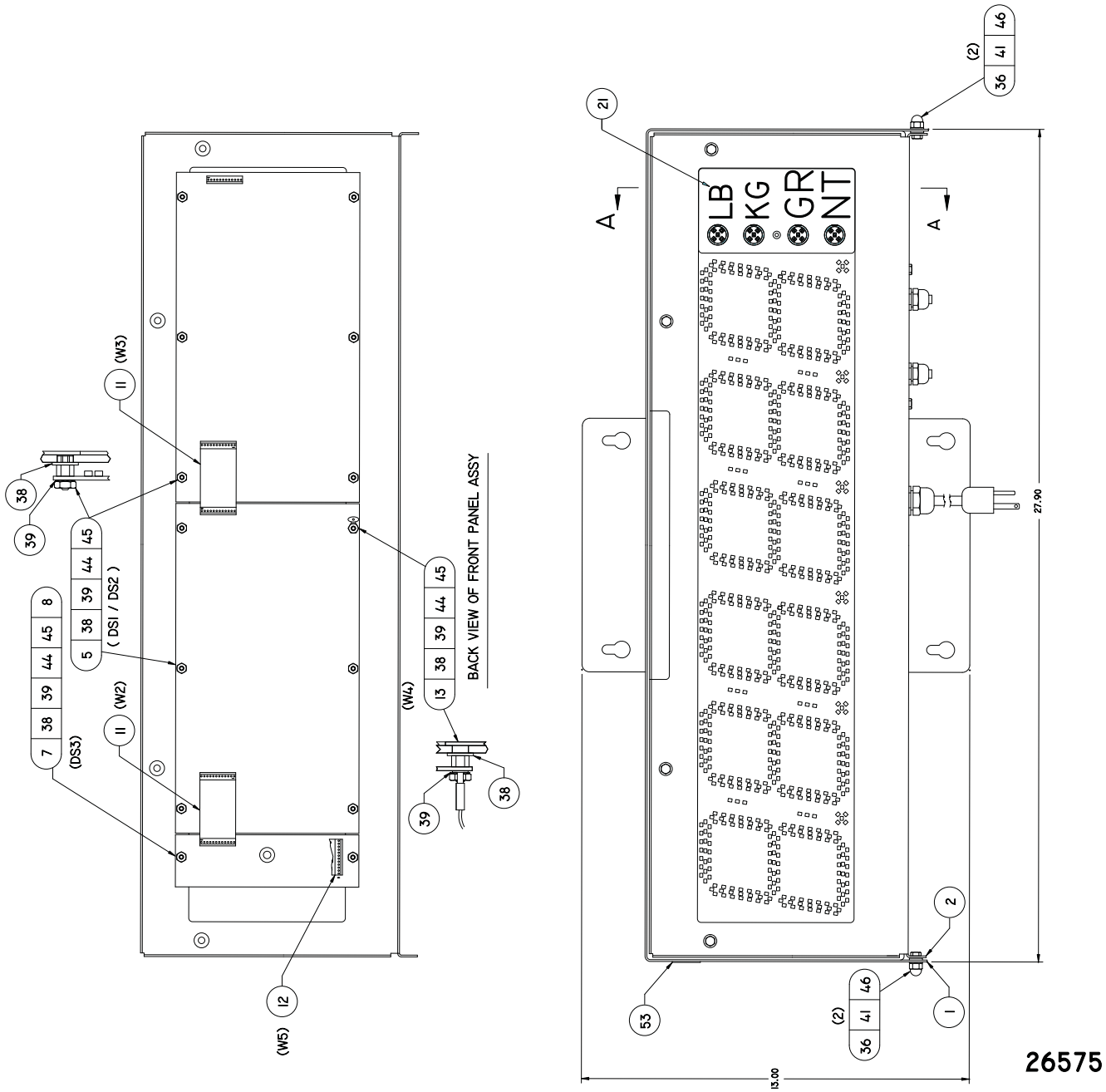
ITEM	PART NO.	QTY	DESCRIPTION
1	26571	1	Enclosure Assembly
2	26568	1	Front Panel Assembly
3	26569	1	Window
5	27212	2	LED Display PCB Assembly
6	27416	1	CPU PCB Assembly
7	27531	1	Annunciator PCB Assembly
8	27721	1	Foam Spacer
10	15435	1	Power Cord Assembly
11	27105	2	Cable Assembly
12	2710	1	Cable Assembly
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

6.5. 5” Remote Display PARTS LIST, CONTINUED

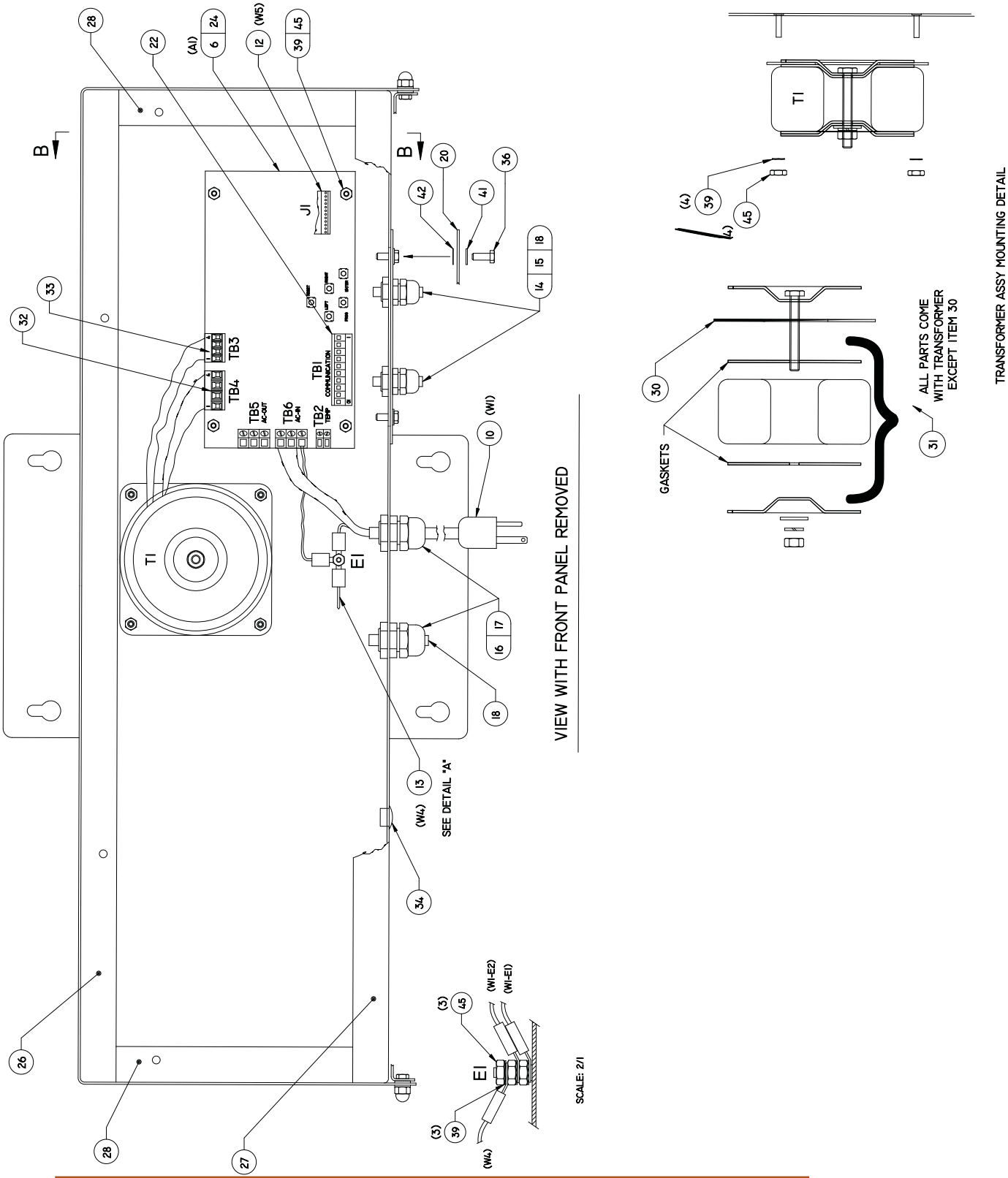
ITEM	PART NO.	QTY	DESCRIPTION
38	10310	14	Washer-Flat
39	11191	25	Washer-Lock-Ext. Tooth No. 6
41	11495	12	Washer-Plain (Nylon) No. 10
42	25715	8	Washer-Retaining No. 10
44	17597	14	Spacer 6-32 x 0.19
45	11102	25	Hex Nut 6-32
46	15716	2	Thread-Lock Acorn Nut 10-32
52	27734	1	Nameplate
53	27733	1	Nameplate
*	51167	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).***

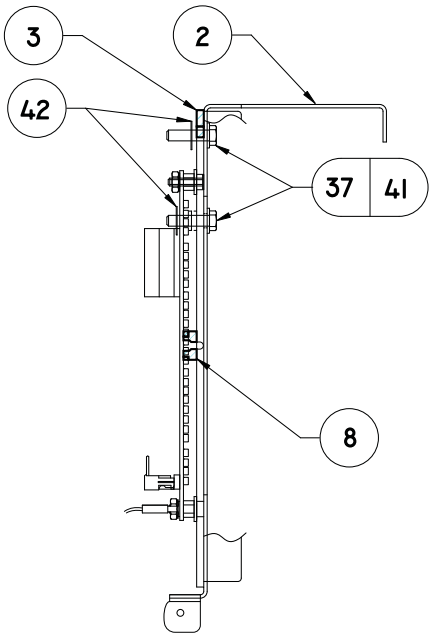
6.6. 5" REMOTE DISPLAY PARTS DIAGRAMS

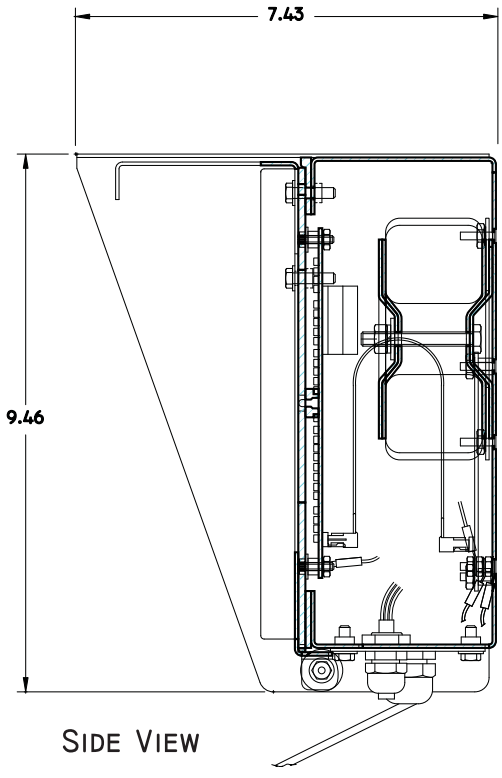


6.6. 5” REMOTE DISPLAY PARTS DIAGRAMS, CONTINUED



6.6. 5” REMOTE DISPLAY PARTS DIAGRAMS, CONTINUED





SIDE VIEW

5" REMOTE DISPLAY ASSY
218 DISPLAY
51157-1

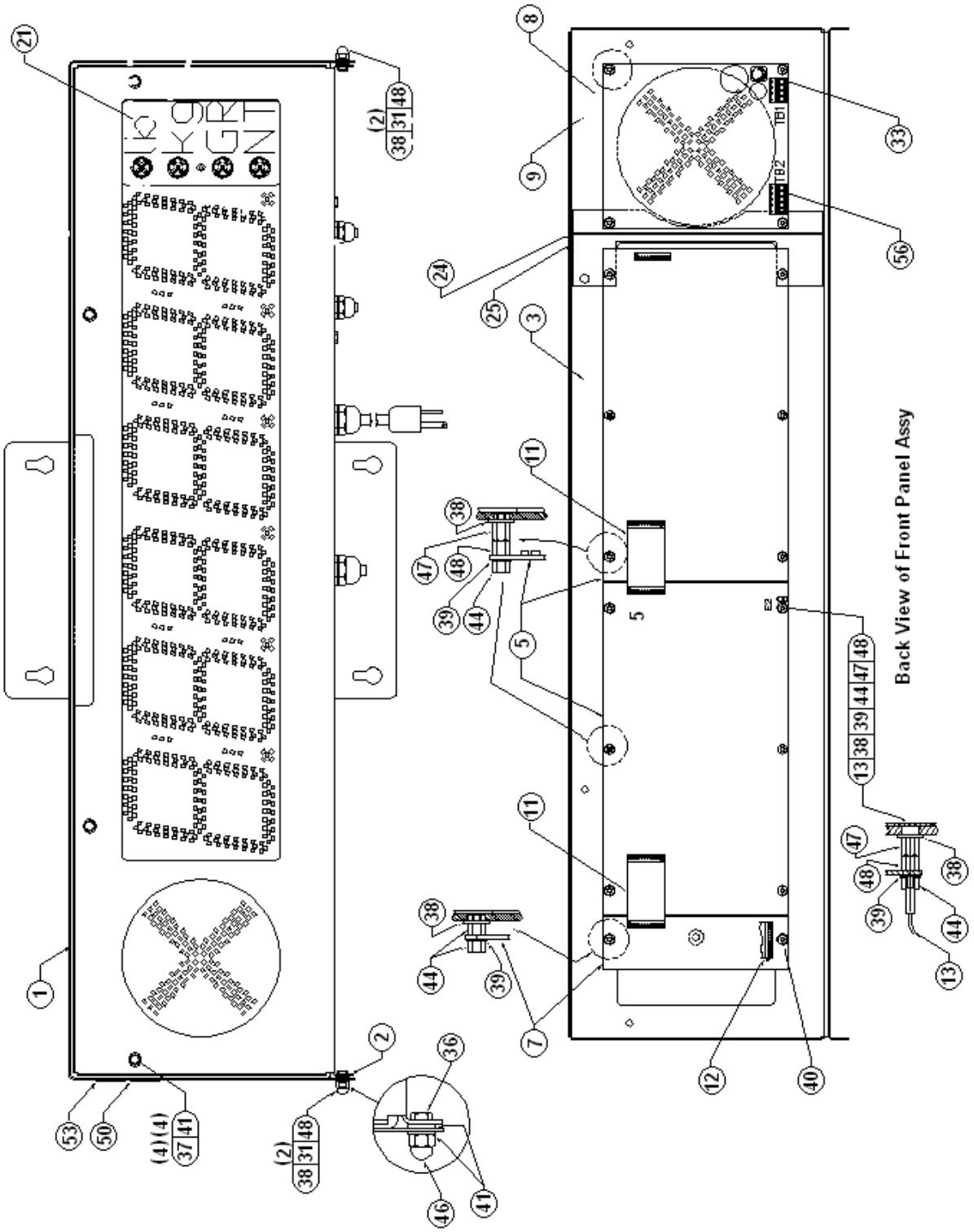
6.7. 218T (29774) REMOTE DISPLAY PARTS LIST

ITEM	PART NO.	QTY	DESCRIPTION
1	28986	1	ENCLOSURE WELDMENT
2	28988	1	FRONT PANEL ASSY
3	28991	1	WINDOW, LARGE
4	28987	1	SHROUD ASSY
5	27212	2	PCB ASSY, LED DISPLAY
6	30400	1	PCB ASSY, CPU
7	27531	1	PCB ASSY, ANNUNCIATOR
8	29700	1	PCB ASSY, TRAFFIC LIGHT MODULE
9	28992	1	WINDOW, SMALL
10	15435	1	POWER CORD ASSY
11	27105	2	CABLE ASSY
12	27106	1	CABLE ASSY
13	27109	1	CABLE ASSY, GROUND
14	17545	2	CONNECTOR, LIQUID TIGHT .50
15	15651	2	RING, “O” -- FOR 50
16	17534	2	CONNECTOR, LIQUID TIGHT .75
17	12342	2	RING, “O” -- FOR .75
18	12609	2	ROD, NYLON .25 DIA. X 1.00
19	12011	1	ROD, NYLON .375 DIA. X 1.00
20	26570	1	DOOR, ACCESS
21	27107	1	OVERLAY, LEGEND
22	27432C	1	BLOCK, TERMINAL, PLUG 10 POS
23	29772	1	CABLE ASSY
24	13223	AR	ADHESIVE, SEALANT RTV
25	29780	1	BRACKET, WINDOW
26	28993	1	GASKET, TOP
27	28994	1	BASKET, BOTTOM

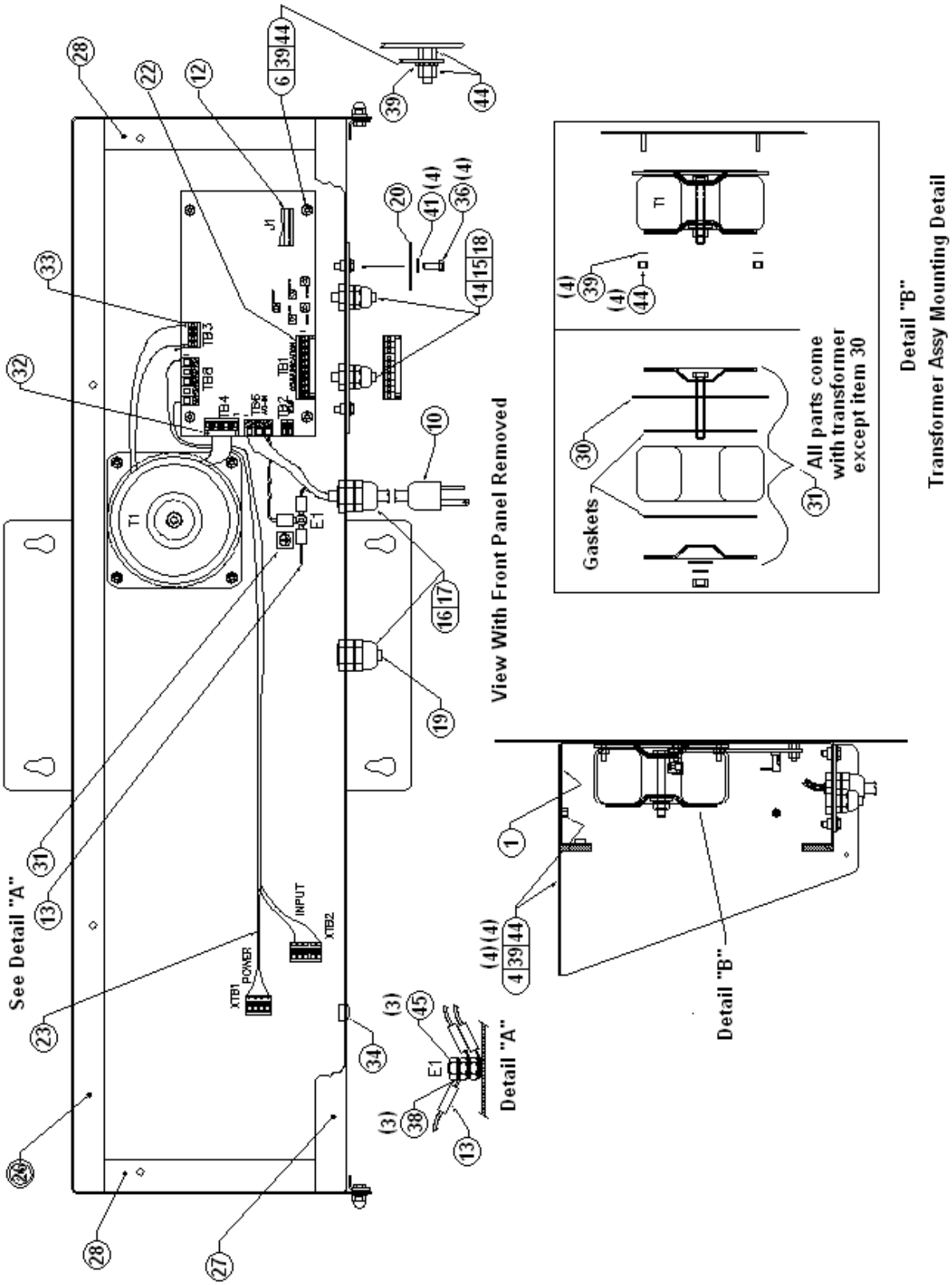
6.7. 218T (29774) REMOTE DISPLAY PARTS LIST, CONTINUED

ITEM	PART NO.	QTY	DESCRIPTION
28	26574	2	GASKET, SIDE
29			
30	26563	1	PLATE, TRANSFORMER MOUNTING
31	27656	1	TRANSFORMER
32	17521	1	BLOCK, TERMINAL, PLUG 4 POS .295 C-C
33	27545C	1	BLOCK, TERMINAL, PLUG 4 POS .197 C-C
34	14225	1	PLUG, HOLE .50 DIA.
35			
36	11075	6	SCREW-CAP-HEX HD. 10-32 X .50
37	11076	4	SCREW-CAP-HEX HD. 10-32 X .75
38	10310	14	WASHER-FLAT
39	11191	33	WASHER-LOCK-EXT. TOOTH NO. 6
40	11339	1	WASHER-PLAIN (NYLON) NO. 8
41	11495	12	WASHER-PLAIN (NYLON) NO. 10
42			
43			
44	17597	36	SPAER, HEX 6-32 THDS X .19 LONG
45	11102	3	NUT-HEX 6-32
46	15716	2	NUT, THREADLOCK ACORN 10-32
47	17595	16	SPACER, HEX 6-32 THDS X .31 LONG
48	17586	16	STANDOFF, HE, M/F, 6-32 THDS X .25 LONG
49			
50	29081	1	ETL, MARK LABEL
51	24366	1	LABEL, GROUND SYMBOL
52	11224	1	NAMEPLATE
53	29771	1	NAMEPLATE
54	51157	1	MANUAL, CD (28679)
55	13486	1	CONNECTOR KIT, DB9 ACC 334
56	17509	1	PLUG, TERMINAL 5 POS .197 C-C

6.8. 218T (29774) REMOTE DISPLAY PARTS DIAGRAM



6.8. 218T (29774) REMOTE DISPLAY PARTS DIAGRAM, CONTINUED



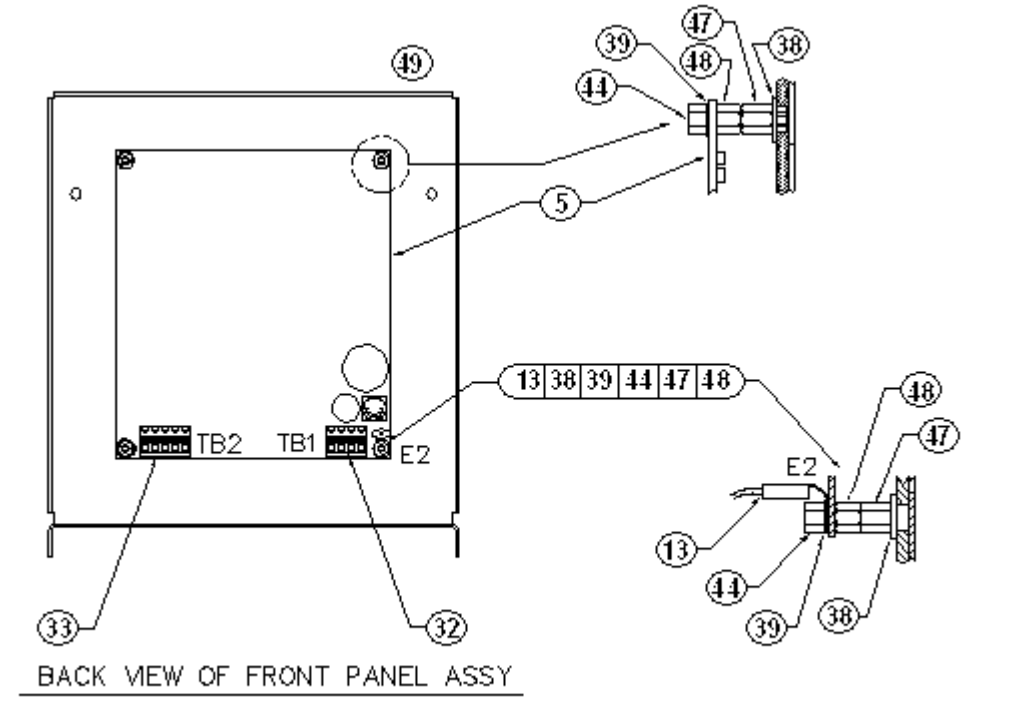
6.9. 778 REMOTE DISPLAY (29790) PARTS LIST

ITEM	PART NO.	QTY	DESCRIPTION
1	28996	1	ENCLOSURE WELDMENT
2	28998	1	FRONT PANEL ASSY
3	29002	1	WINDOW
4	28997	1	SHROUD ASSY
5	29700	1	PCB ASSY, TRAFFIC LIGHT MODULE DS1
6			
7			
8			
9			
10	17502	1	BLOCK, TERMINAL END TB3
11	27105	2	BLOCK, TERMINAL TB3
12			
13	27109	1	CABLE ASSY, GROUND
14	17545	1	CONNECTOR, LIQUID TIGHT .50
15	15651	1	RING, “O” -- FOR 50
16	17534	1	CONNECTOR, LIQUID TIGHT .75
17	12342	1	RING, “O” -- FOR .75
18	12609	1	ROD, NYLON .25 DIA. X 1.00
19	12011	1	ROD, NYLON .38 DIA. X 1.00
20			
21	12011	1	PLUG, HOLE .875 DIA X 1.00
22	29289	3	PLUG, HOLE .438 DIA X 1.00
23			
24	17429	1	CLAMP, GROUND
25			
26	28995	2	GASKET, TOP & BOTTOM
27			
28	26574	2	BASKET, SIDE

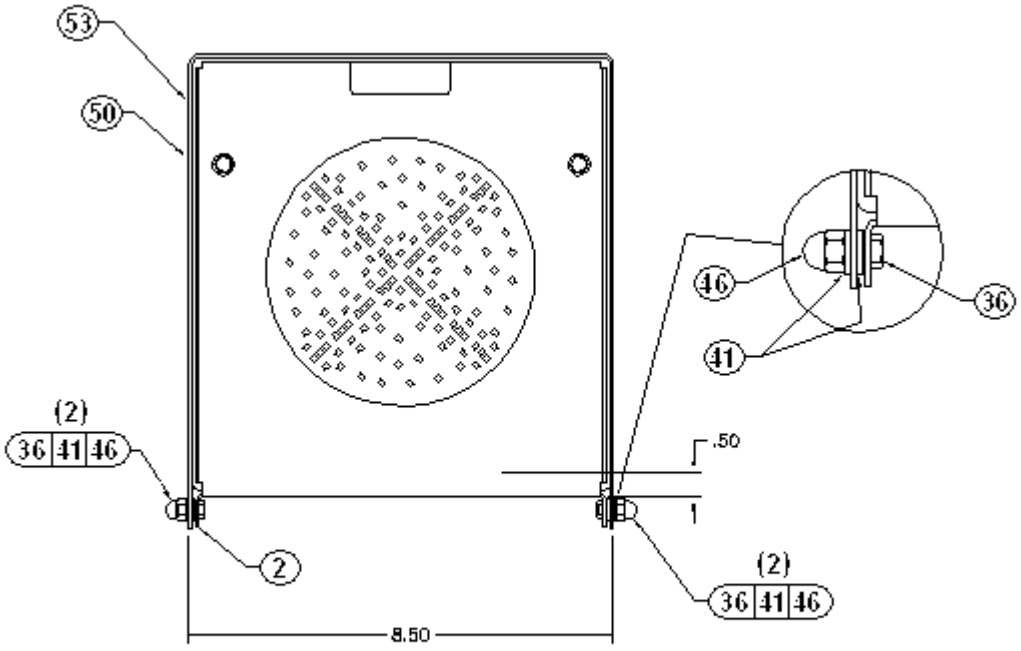
6.9. 778 REMOTE DISPLAY (29790) PARTS LIST, CONTINUED

ITEM	PART NO.	QTY	DESCRIPTION
31	27656	1	TRANSFORMER
32	27434C	1	PLUG TERMINAL 4 POS .197 C-C
33	17509	1	PLUG TERMINAL 5 POS .197 C-C
34	11141	1	SCREW-MACH-PAN HD-PHIL 6-32 X .50
35			
36	11075	6	SCREW-CAP-HEX HD. 10-32 X .50
37	11076	4	SCREW-CAP-HEX HD. 10-32 X .75
38	10310	14	WASHER-FLAT NO. 6
39	11191	33	WASHER-LOCK-EXT. TOOTH NO. 6
40	11339	1	WASHER-PLAIN (NYLON) NO. 8
41	11495	12	WASHER-PLAIN (NYLON) NO. 10
42			
43			
44	17597	36	SPAER, HEX 6-32 THDS X .19 LONG
45	11102	3	NUT-HEX 6-32
46	15716	2	NUT, THREADLOCK ACORN 10-32
47	17595	16	SPACER, HEX 6-32 THDS X .31 LONG
48	17586	16	STANDOFF, HE, M/F, 6-32 THDS X .25 LONG
49			
50	29081	1	ETL, MARK LABEL
51	24366	1	LABEL, GROUND SYMBOL
52	11224	1	NAMEPLATE
53	29771	1	NAMEPLATE
54	51157	1	MANUAL, CD (28679)

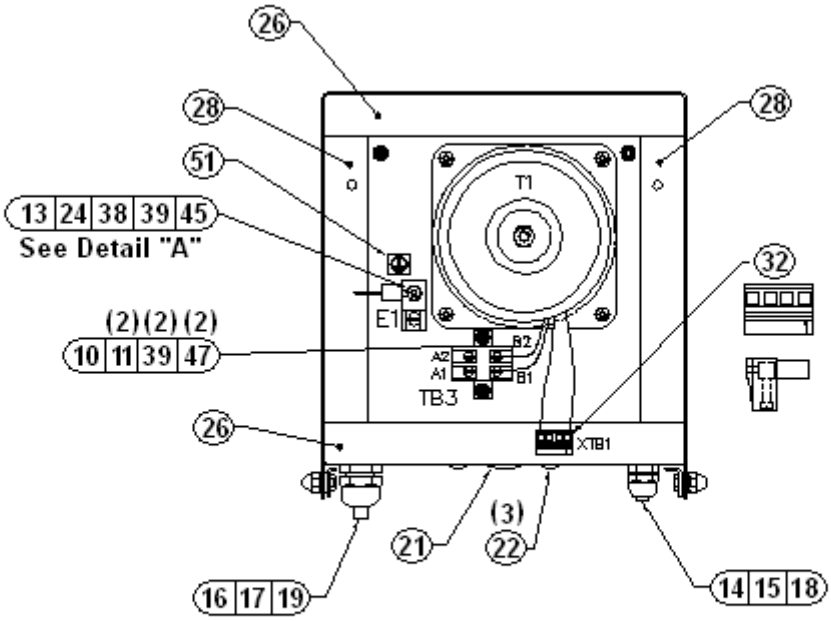
6.10. 778 PARTS DIAGRAMS

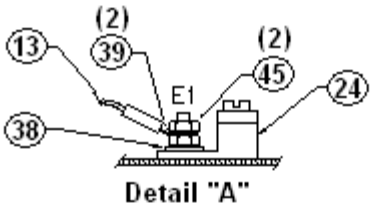


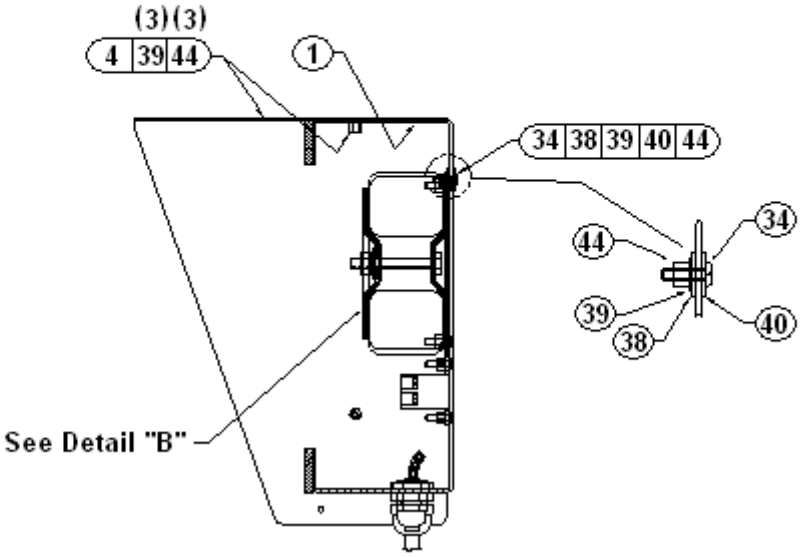
BACK VIEW OF FRONT PANEL ASSY



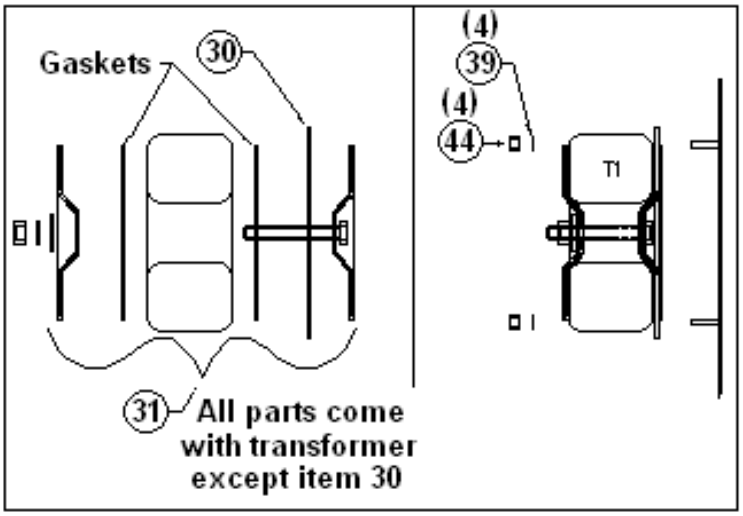
6.10. 778 PARTS DIAGRAMS, CONTINUED



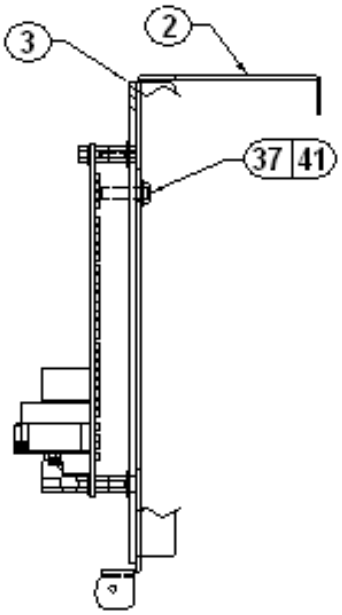




6.10. 778 PARTS DIAGRAMS, CONTINUED



Detail "B"
Transformer Assy Mounting Detail



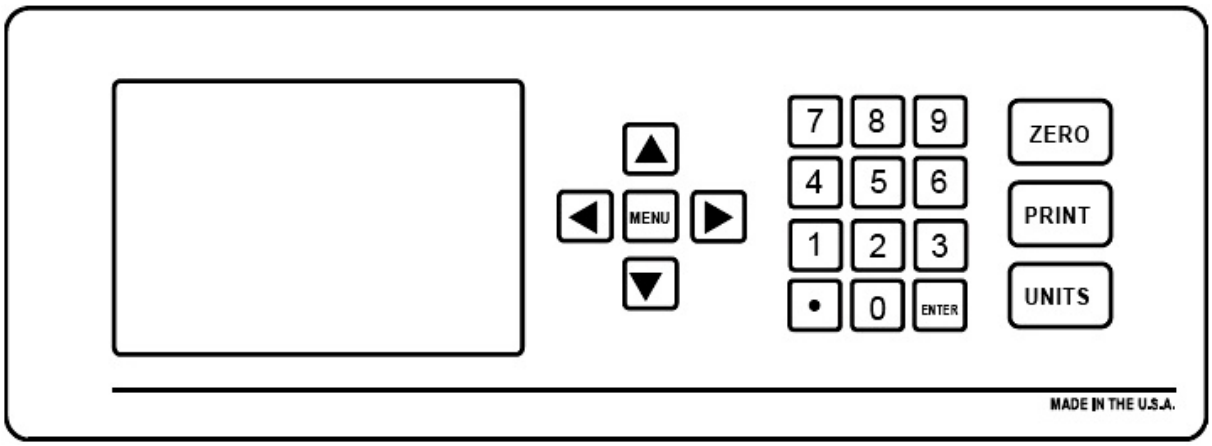
Appendix I: TS-218 Programming

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: IS 3000 Series Programming

Follow these steps to configure the **IS 3000 Instrument** so it interfaces with the **1600 Series Display.**

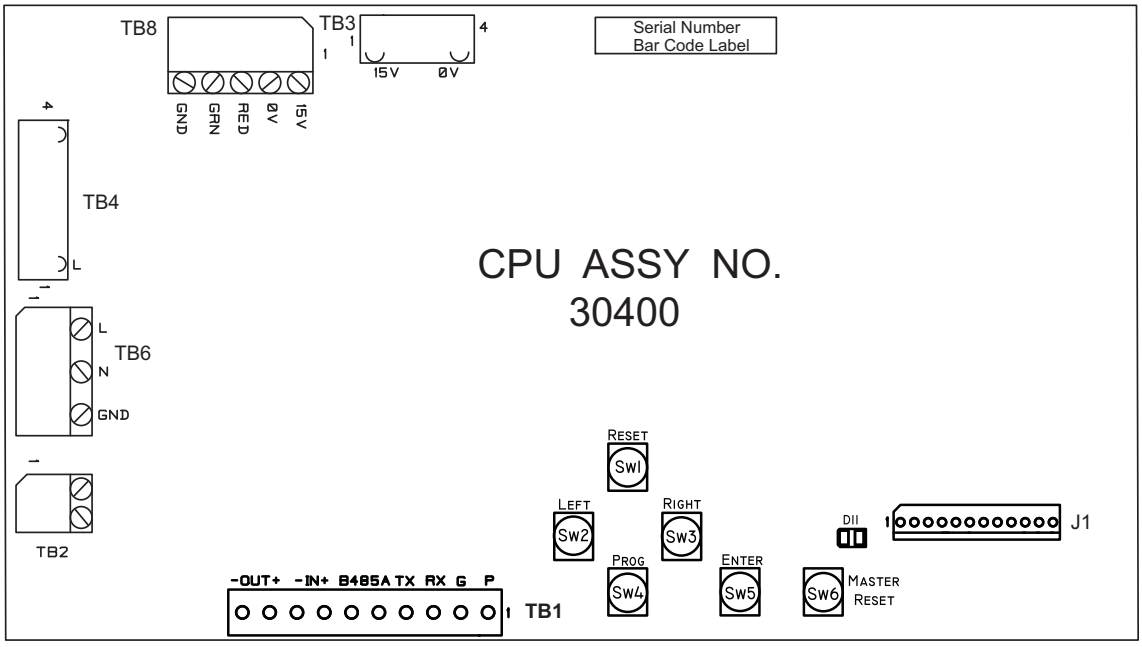


1. Press **MENU** button to open the **Configuration Menu**.
2. Using the **UP** and **DOWN** arrow buttons, select **COMMUNICATION**.
3. Using the **UP** and **DOWN** arrow buttons, select **REMOTE DISPLAY**.
4. Using the **UP** and **DOWN** arrow buttons, select **GROSS ONLY**.
   - ✓ *If using the **IS3000 Indicator** **TIME OUTPUT** setting under the Remote Display menu selection the **218** time display will be overridden, and the **IS3000** 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 to back out through the menu windows, exiting to the main menu.

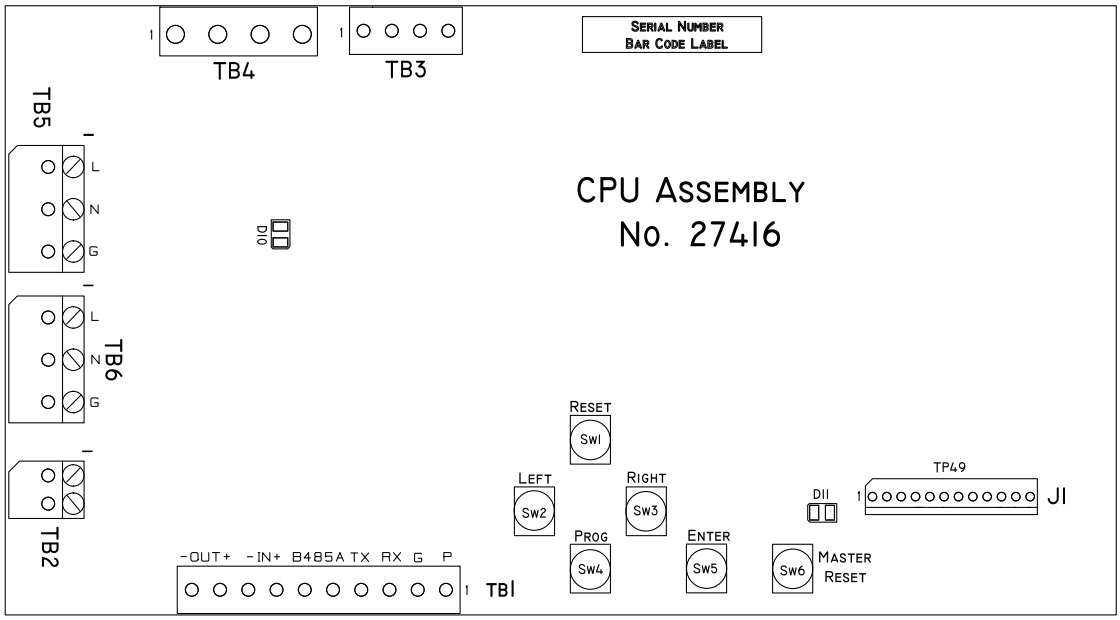
NOTE: *If using a custom string from the **IS3000** make sure that leading zeroes are disabled in the weight string to prevent all digits from lighting.*

Appendix III: CPU Assembly – Current vs. Previous Models

Shown below is a diagram of the **current** CPU Assembly*.*



Shown below is a diagram of the CPU model **previous to 10/11***.*



A. 218 – (30400), 1-1/2" CPU Assy Wiring Chart

WIRE NO.	FROM		WIRE				RTE	TO		REMARKS
	TERMINATION	NOTE	ITEM #	COLOR	GAGE	LGTH		TERMINATION	NOTE	
1	W1–BR	–	10	BR	–	–	–	TB6–1	3	AC
2	W1–BL	–	10	BL	–	–	–	TB6–2	3	ACC
3	W1E1	–	10	G/Y	–	–	–	E1	3	CHASSIS GND
4	W1E2	–	10	G/Y	–	–	–	E1	3	CHASSIS GND
5	W1E2	–	10	G/Y	–	–	–	TB6–3	3	GND
6	T1–W	–	31	W	–	–	–	TB4–1	3	0V
7										
8										
9	T1–B	–	31	B	–	–	–	TB4–4	3	110 VAC
10	T1–BL	–	31	BL	–	–	–	TB3–1	3	0V
11	T1–BL	–	31	BL	–	–	–	TB3–4	3	20V/8A

B. 218RF – (30400), 5" CPU Assy Wiring Chart

WIRE NO.	FROM		WIRE				RTE	TO		REMARKS
	TERMINATION	NOTE	ITEM #	COLOR	GAGE	LGTH		TERMINATION	NOTE	
1	W1–BR	–	10	BR	–	–	–	TB6–1	3	AC
2	W1–BL	–	10	BL	–	–	–	TB6–2	3	ACC
3	W1E1	–	10	G/Y	–	–	–	E1	3	CHASSIS GND.
4	W1E2	–	10	G/Y	–	–	–	E1	3	CHASSIS GND.
5	W1E2	–	10	G/Y	–	–	–	TB6–3	3	GND.
6	T1–BLK	–	31	BLK	–	–	–	TB4–1	3	110 VAC
7	T1–BRN	–	31	BRN	–	–	–	TB4–2	3	110 VAC
8	T1–WHT	–	31	WHT	–	–	–	TB4–3	3	0V
9	T1–ORG	–	31	ORG	–	–	–	TB4–4	3	0V
10	T1–YEL	–	31	YEL	–	–	–	TB3–1	3	0V
11	T1–RED	–	31	RED	–	–	–	TB3–4	3	15V/2.67A
12	T1–BLU	–	31	BLU	–	–	–	TB3–2	3	0V
13	T1–GRY	–	31	GRY	–	–	–	TB3–3	3	15V/2.67A

C. 218T – (30400), 5" CPU Assembly Wiring Chart

WIRE NO.	FROM		WIRE				RTE	TO		REMARKS
	TERMINATION	NOTE	ITEM #	COLOR	GAGE	LGTH		TERMINATION	NOTE	
1	W1–BR	–	10	BR	–	–	–	TB6–1	3	AC
2	W1–BL	–	10	BL	–	–	–	TB6–2	3	ACC
3	W1E1	–	10	G/Y	–	–	–	E1	3	CHASSIS GND.
4	W1E2	–	10	G/Y	–	–	–	E1	3	CHASSIS GND.
5	W1E2	–	10	G/Y	–	–	–	TB6–3	3	GND.
6	T1–BLK	–	31	BLK	–	–	–	TB4–1	3	110 VAC
7	T1–BRN	–	31	BRN	–	–	–	TB4–2	3	110 VAC
8	T1–WHT	–	31	WHT	–	–	–	TB4–3	3	0V
9	T1–ORG	–	31	ORG	–	–	–	TB4–4	3	0V
10	T1–YEL	–	31	YEL	–	–	–	TB3–1	3	0V
11	T1–BLU	–	31	BLU	–	–	–	TB3–2	3	0V
12	T1–GRY	–	31	GRY	=	=	=	TB3–3	3	15V/2.67A
13	T1–RED		31	RED				TB3–4	3	15V/2.67A
14	W4–E1	–	13	GRN	–	–	–	W4–E2	3	CHASSIS GND.
15										
16	W6–BK	–	23	BLK	–	–	–	TB8–1	3	15V/2.67A
17	W6–WHT	–	23	WHT	–	–	–	TB8–2	3	0V
18	W6–RED	–	23	RED	–	–	–	TB8–3	3	RED LIGHT
19	W6–GRN	–	23	GRN	–	–	–	TB8–4	3	GREEN LIGHT
19	W6–YEL	–	23	YEL	–	–	–	TB8–5	3	GROUND

*D. 218 – (27416), 1-1/2" CPU Assy Wiring Chart **

WIRE NO.	FROM		WIRE				RTE	TO		REMARKS
	TERMINATION	NOTE	ITEM #	COLOR	GAGE	LGTH		TERMINATION	NOTE	
1	W1–BR	–	10	BR	–	–	–	TB6–1	3	AC
2	W1–BL	–	10	BL	–	–	–	TB6–2	3	ACC
3	W1E1	–	10	G/Y	–	–	–	E1	3	CHASSIS GND
4	W1E2	–	10	G/Y	–	–	–	E1	3	CHASSIS GND
5	W1E2	–	10	G/Y	–	–	–	TB6–3	3	GND
6	T1–W	–	31	W	–	–	–	TB4–1	3	0V
7	T1–W	–	31	W	–	–	–	TB4–2	3	0V
8	TB–W	–	31	B	–	–	–	TB4–3	3	110 VAC
9	T1–B	–	31	B	–	–	–	TB4–4	3	110 VAC
10	T1–BL	–	31	BL	–	–	–	TB3–1	3	0V
11	T1–BL	–	31	BL	–	–	–	TB3–4	3	20V/8A

NOTE: *The wiring chart listed above is for the* **CPU Card** *part number* **27416**, *which is an older, obsolete version.*

218 SERIES
LED REMOTE DISPLAY

DOCUMENT 51167

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