LP600 LOW-PROFILE WHEEL LOAD SCALE

User Manual

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DECLARATION OF CONFORMITY

CE

PRODUCT DESCRIPTION: LP600 Wheel Load Scale

We, Intercomp Company
3839 County Road 116
Medina, Minnesota 55340 USA

Declare under the sole responsibility of Intercomp Company that the LP600 Wheel Load Scale to which this declaration relates is in conformity with the relevant Union harmonization legislation, and meets the essential health and safety requirements, and is in conformity with the relevant EC Directives listed below using the relevant section of the following standards and other normative documents.

DIRECTIVE	DIRECTIVE TITLE / PURPOSE
Directive 2002/96/EC as amended by **2003/108/EC**	WEEE directive
Directive 2014/35/EU	Of the European Parliament and the Council of 26 February 2014 on the harmonization of the laws of the Member States relating to the making available on the market of the electrical equipment designed for use within certain voltage limits. Text with EEA relevance AKA Low Voltage Directive (LVD)
Directive 2001/95/EC	General product safety
Directive 2009/125/EC	Ecodesign requirements for energy-related products (2005/32/EC recast)
Directive 2013/56/EU	Sets out that the limit of 0.0005% of mercury in batteries will also apply to button cell batteries from 1st October 2015. The exemption of button cell batteries in hearing aids will be reviewed by 1st October 2014 AKA batteries and accumulators directive
Directive 2014/30/EU	Of the European Parliament and of the Council of 26 February 2014 on the harmonization of the laws of the Member States relating to electromagnetic compatibility (recast) Text with EEA relevance AKA Electromagnetic Compatibility (EMC) Directive
Directive 2014/31/EU	Of the European Parliament and the Council of 26 February 2014 on the harmonization of the laws of the Member States relating to the making available on the market on non-automatic weighing instruments. Text with EEA relevance AKA Non-Automatic weighing instruments (NAWI)
Directive 2014/53/EU	Of the European Parliament and of the Council of 16 April 2014 on the harmonization of the laws of the Member States relating to the making available on the market of radio equipment and repealing Directive 1999/5/EC Text with EEA relevance AKA Radio Equipment Directive (RED)

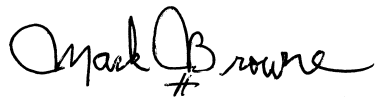
DECLARATION OF CONFORMITY

DIRECTIVE	DIRECTIVE TITLE / PURPOSE
Directive 2015/863 (amending 2011/65/EU)	Commission Delegated Directive (EU) 2015/863 (RoHS 3) of 31 March 2015 amending Annex II to Directive 2011/65/EU of the European Parliament and of the Council as regards to the list of restricted substances (Text with EEA relevance). Intercomp declares that the LS630 Platform Scale is in compliance with the requirements of the European Union Restriction of the use of certain Hazardous Substances in electrical and electronic equipment (RoHS) Directive (EU) 2015/863
EN 45501:1992 AC:1993	Specification for metrological aspects of non-automatic weighing instruments
EN 55011:2016	Industrial, scientific and medical equipment. Radio-frequency disturbance characteristics. Limits and methods of measurement
EN 61000-6-1:2007	Generic standards, Residential, commercial and light industry environment
EN 61000-6-2:2007	Immunity for industrial environments
EN 61000-6-3:2007	Emission standard for residential, commercial and light-industrial environments
EN 61010-1/IEC 1010-1	Safety requirements for electrical equipment for measurement, control and laboratory use. This product complies with all safety-relevant provision referring to protection against electrical hazards and other hazards, such as mechanical hazards, fire hazards, noise and vibration. The safety issues of this measurement equipment have been evaluated under the self-certification provisions of the relevant directives
PL 05 004	Certificate of EC type approval for LP600

The safety issues of this measurement equipment have been evaluated under the self-certification provisions of the relevant directives. This product complies with all safety-relevant provisions referring to protection against electrical hazards and other hazards, such as mechanical hazards, fire hazards, noise and vibration.

The related technical construction files are held for inspection in the U.K. at Intercomp Europe Limited.

Signed for and on the behalf of Intercomp Company:



Mark Browne / Quality Manager
Medina, Minnesota USA
December 11, 2019

INTRODUCTION

This manual contains specifications, operating instructions and calibration procedures for the LP600 Low-Profile Wheel Load Scale.

WARRANTY

The LP600 Low-Profile Wheel Load Scale is covered by a one-year warranty and should be referred to the factory for maintenance within the warranty period. Attempts to make repairs within the warranty period may invalidate the warranty. If repairs are needed after the warranty period, only qualified technicians should attempt such repairs.

FEATURES

- lb or kg programmable readout
- Capability to display total weight
- Accumulating total function
- Auto Zero Tracking automatically corrects zero-weight display shifts
- 5½ digit LCD readout with automatic backlighting
- RFI/EMI protection
- Automatic shut-off to conserve battery life
- Low battery detection with automatic shutoff
- Integrated self-diagnostics test: Load Cells, Memory, Display, AD Converter and Power Supply
- Weigh scales manufactured from high strength aluminum alloys

OPTIONS

- Carrying cases for scales
- Radio for wireless operation
- Data Acquisition Computer

SPECIFICATIONS

CONTROLS

CONTROL PANEL BUTTONS			
ON / OFF	LOCAL / TOTAL	ZERO	PRINT / ACCUMULATE
LCD INDICATORS			
LOCAL WEIGHT	TOTAL WEIGHT	ACCUMULATED TOTAL WEIGHT	
DISPLAY SCREEN			
5 1/2 Digit, 1 inch (25 mm) Liquid Crystal Display (LCD). Automatic Back Lighting			

ELECTRICAL

FUNCTION	SPECIFICATION
Power Source	Dual Power. Solar or Battery
	Available Power: 5 - 15 VDC and 100 - 240 VAC when using battery charger
Charging Voltage	9 - 15 VDC
Cable Charging Current	50 mA
Solar Charging Current	100 mA with full sun
Battery Type	(4) AA NiMH Rechargeable Batteries
Battery Performance	RADIO OFF: 250 hours plus solar boost
	RADIO ON: 200 hours plus solar boost
	DAYTIME OUTDOOR USE: Solar boost provides full year of power without requiring direct power charging 1. NOTE: The solar benefit is influenced by amount and quality of sunlight and geographic position of the scale 2. It is recommended that the batteries be replaced on an annual basis (at a minimum) 3. The battery life for setups requiring a scale wireless host is 40 hours
Filtering	Adjustable averaging up to 30 seconds

SPECIFICATIONS

PERFORMANCE

FUNCTION	SPECIFICATION
Speed	4 display updates per second
Accuracy	± 1% of reading or ± display graduation, whichever is greater
Calibration Interval	Twelve months recommended

ENVIRONMENTAL

FUNCTION	SPECIFICATION
Humidity	10 to 95% non-condensing
Temperature	Operating: -20° F to 150° F / -28° C to 65° C
	Storage: -40° F to 170° F / -40° C to 75° C
EMI/RFI	Meets Mil Spec 461
Ingress Protection	IP67

PHYSICAL

FUNCTION	SPECIFICATION
Scale Dimensions	Platform: 22.5 in X 15.0 in X 1.5 in / 569 mm X 381 mm X 38 mm
	Overall (With Skid Guard): 33.25 in X 18.5 in / 845 mm X 470 mm
	Overall (No Skid Guard): 33.25 in X 16 in / 845 mm X 406 mm
Scale Weight	With Skid Guard: 51 lb / 23.1 kg
	Without Skid Guard: 47 lb / 21.3 kg

SPECIFICATIONS

RADIO

FUNCTION	SPECIFICATION
Radio Frequency	ISM 2.4GHz, 802.15.4 DSSS*
License Requirements	None. Pre-approved US/FCC, CAN/IC, EUR/CE
Range	200 ft / 60m indoor, 300 ft / 90m line of sight
Batteries (AC-PDA-RF only)	4-AA size alkaline or NiMH rechargeable
Battery Life (AC-PDA-RF only)	36 hours using NiMH 2500 or alkaline

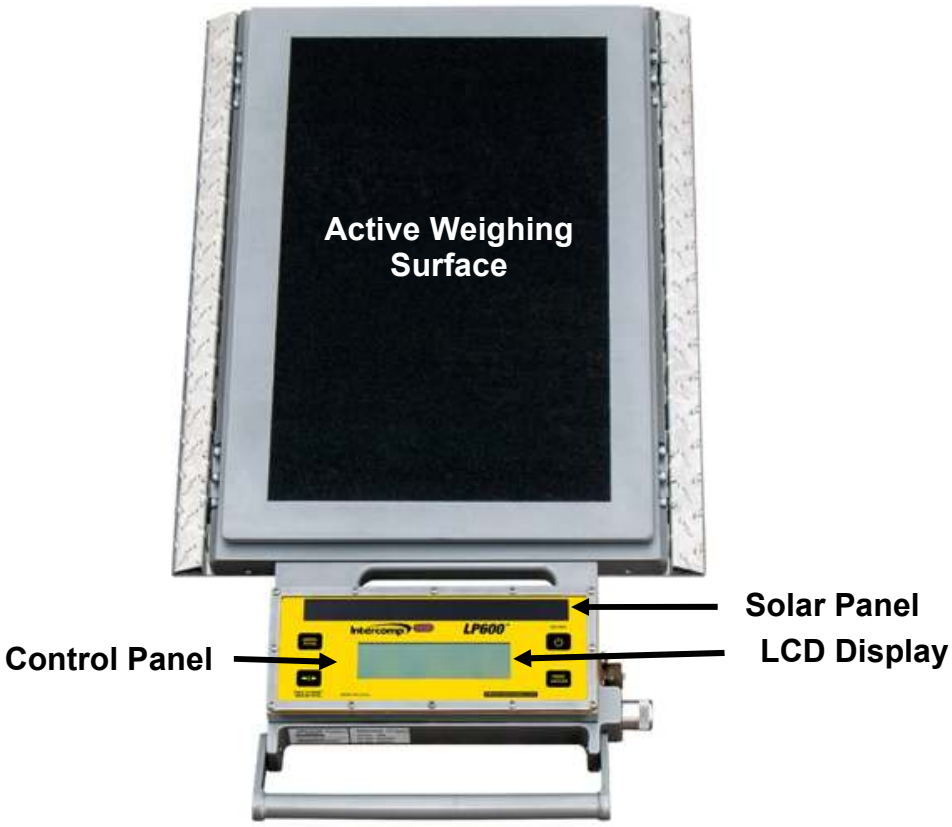
* Radio Notes: Frequency: ISM 2.4GHz (2.400GHz - 2.483GHz), with 12 channels (CH 1 - 12) within that range with each center frequency = 2405MHz + (CH * 5) MHz Power output 63mW (18dBm), 10mW (10dBm) for international variant. Antenna is internal surface mount with -1.5dbi gain, omni-directional.

WARNING: FCC Radio Frequency (RF) exposure requirements for mobile transmitting devices dictate that a separation distance of 20 cm or more should be maintained between the antenna of this device and persons during device operation. To ensure compliance, operations at closer than this distance is not recommended. The antenna used for this transmitter must not be co-located in conjunction with any other antenna or transmitter.

SCALE OVERVIEW

SYSTEM OVERVIEW

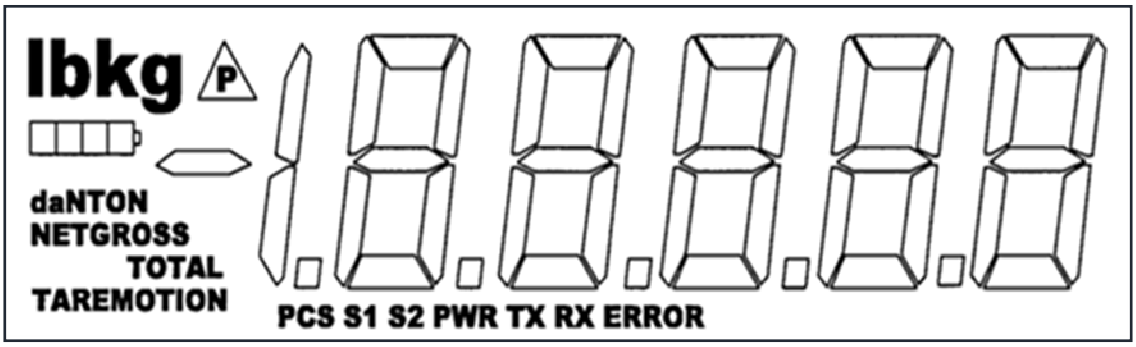
The LP600 Low-Profile Scale is comprised of the active weighing platform and control panel. The Control Panel, located at the front of the scale houses the system electronics, LCD display screen and a solar panel for powering the scale.



SCALE OVERVIEW

DISPLAY DESCRIPTION

The LP600 control panel uses a Liquid Crystal Display (LCD) unit (shown below) providing one line of 5 1/2 digits.



The screen displays the weight read from the scale. Other information displayed includes indicators for lb and kg unit of measure, battery power level segment bar, error messages and set-point indicators that illuminate when set-point thresholds are reached. The LCD display has an automatic backlight for use in low-light conditions.

BATTERY POWER SEGMENT BAR

The Battery Power Level Segment Bar located in the upper left corner of the display provides the current status of battery output. When the battery charger is connected, individual segments of the Segment Bar will cycle from left to right.

SCALE MEASUREMENT MODES

The TOTAL icon is used to display the scale measurement mode setting as referenced in the table below.

LP600 SCALE MEASUREMENT MODES

TOTAL ICON	MODE SETTING
TOTAL Icon Not Illuminated	Local
TOTAL Icon Illuminated	Total
TOTAL Icon Flashing	Accumulated Total

SCALE OVERVIEW

CONTROL PANEL FUNCTIONS

ON / OFF

Press the ON/OFF ⏻ button to apply power to the scale electronics. When power is first applied, a self-test is performed of the scale and the internal electronics. When the self-test has successfully completed, the scale is ready to begin weighing. If a problem is detected during self-test, the screen will display an error message. To turn the scale off, press the ON/OFF button. The LP600 retains the setup information and calibration in a special memory device (non-volatile memory) that is not affected by power loss or battery condition.

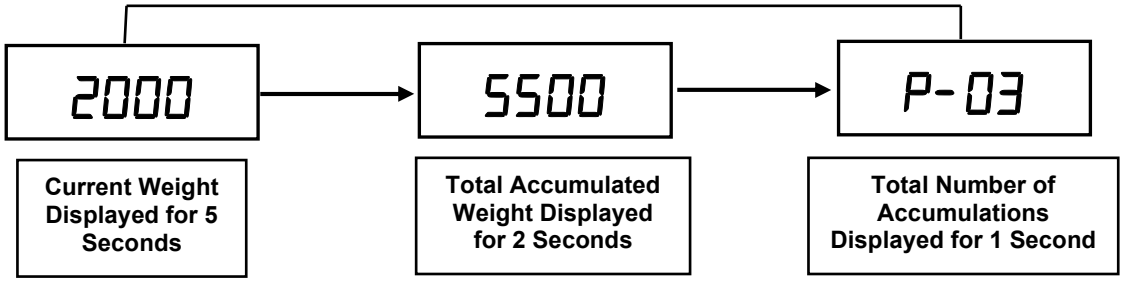
PRINT/ACCUMULATE

Press the PRINT/ACCUMULATE button to print and/or accumulate weights. The Print/Accumulate function is dependent on the current print mode setting. When using the Accumulated Total function, press the PRINT/ACCUMULATE button to add the total to the accumulated total (New accumulated total = total weight of all scales in system + old accumulated total).

SCALE OPERATION

Control Panel Functions (continued)

When a successful accumulation has occurred, the scale will automatically toggle the display to show the current weight, accumulated total and number of accumulations.



ACCUMULATE NOTE: The scale will not accumulate when the weight is negative, zero or if the weight is in motion. These protections ensure only valid readings are accumulated into the total. An error message Ac.Err will be displayed when any of the three conditions are present. At the completion of a successful accumulation, the scale must be returned to zero before the next accumulation can be attempted. If an attempt is made to accumulate the next weight before allowing the scale to return to zero, the error message Ac.Err will be displayed.

The accumulated total weight can be viewed only on the designated scale. When the PRINT/ACCUMULATE button is pressed, the screen will display the message Ac. x as the system accumulates the next reading and sends it to print (**x** denotes the number of accumulations for the session). When a successful accumulation has occurred, press the LOCAL/TOTAL button to cycle the scale to display the number of accumulations, current local weight, current total weight on all scales, and the accumulated total. When the local weight, current total weight or accumulated total is displayed, the TOTAL icon will be illuminated, flashing or turned off.

LOCAL / TOTAL

The LOCAL/TOTAL function is used when the LP600 is cabled directly to the scales and not connected to a central CPU or indicator. The Local Weight refers to the weight on a specific scale. The Total Weight is the weight on all of the scales in the system. Press the LOCAL/TOTAL button to toggle between Local Weight and Total Weight. The indicator bars will display the weight mode as either Local Weight or Total Weight.

ATTENTION: If the system is not setup correctly, an error icon and the message tOt will be displayed when attempting to view the Total weight.

SCALE OPERATION

Control Panel Functions (continued)

ZERO

The ZERO button will reset the weight on a scale to read zero in either lb or kg unit of measure (refer to the MODE Menu section for further information). If the ZERO button is pressed when a scale holds weight, the current weight becomes the zero condition for the scale. The ZERO feature can be useful to cancel the weight of weighing fixtures such as tail cones or wheel chocks. When the weight is removed, a negative weight is displayed until the system is re-zeroed. The ZERO function can also be used when a non-zero value is displayed with no weight on the scale.

ATTENTION: The LP600 scale has an integrated Auto Zero Tracking (AZT) feature that corrects for slight zero changes that may occur during normal operation. An example of a zero change could be buildup of dirt on the scale.

The ZERO button is used to clear the accumulated total. Press and hold the ZERO button until the screen displays CLr.t. Release the ZERO button to reset the accumulated total and accumulation weight. All scales connected using interconnect cables will be zeroed when the ZERO button is used to clear the accumulated total.

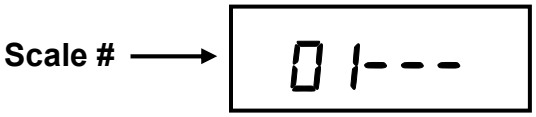
TOTALIZING SETUP

The Totalizing Setup section provides instructions for configuring a scale for either Self-Totalizing or connection to a PC/PDA for advanced display features. To accumulate multiple weights on a scale or scale set, refer to the Using Accumulated Total section. When the scale is set up in the Self-Totalizing mode, the LOCAL/TOTAL button is used to switch between the weight on a specific scale (LOCAL) and the total weight of all scales connected in the system (TOTAL).

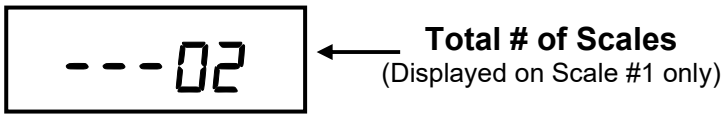
The LP600 scale must be setup correctly to communicate with other scales in the system. If the system is not setup correctly, an error icon and the message tOt will be displayed when attempting to view the total weight.

1. To begin Totalizing Setup, press the LOCAL/TOTAL button and ZERO button simultaneously.

2. The message SC id will be displayed. Press the PRINT/ACCUMULATE button. A number will be displayed followed by 3 dashes. The number displayed is the scale number. Use the LOCAL/TOTAL button to increment and the ZERO button to decrement the number. When the desired number is displayed, press the PRINT/ACCUMULATE button.



3. The message SCLS will be displayed. Press the PRINT/ACCUMULATE button. Three dashes followed by a number will be displayed. The number represents the total number of scales in the system. Use the LOCAL/TOTAL button to increment and the ZERO button to decrement the number. When the desired number is displayed, press the PRINT/ACCUMULATE button. NOTE: The maximum number of scales that can be connected in a system is 32.



TOTALIZING SETUP

Totalizing Setup (continued)

4. If the scale is assigned number 1, a prompt will be displayed confirming the scale designation is HOSt. Press the PRINT/ACCUMULATE button. Use the LOCAL/TOTAL button or the ZERO button to toggle either the YES or no setting. A scale with a HOST designation controls the entire scale network. The setting should be set to YES if the scale network consists of scales only. If the system uses an external device such as a PDA or PC to view the weights, the display setting should be set to no because the external host device controls the scale network. Press the PRINT/ACCUMULATE button to save the setting.

EXAMPLE 1 (Correct Scale Settings: 4 Scale System with PDA or PC)

	Scale ID	Number of Scales	*Host Setting
SCALE #1	[01---]	[---04]	[no]
SCALE #2	[02---]	[---04]	
SCALE #3	[03---]	[---04]	
SCALE #4	[04---]	[---04]	

EXAMPLE 2 (Correct Settings: 4 Scale Totalizing System Using Scales Only)

	Scale ID	Number of Scales	*Host Setting
SCALE #1	[01---]	[---04]	[YES]
SCALE #2	[02---]	[---04]	
SCALE #3	[03---]	[---04]	
SCALE #4	[04---]	[---04]	

* Host setting is only available when the Scale ID is set to 01.

SERIAL OUTPUT SETUP

There are four different serial output modes available for LP600. The Serial Output Setup feature is typically not required for a standard LP600 scale system.

SERIAL OUTPUT MODES
On-Demand
Continuous
Accumulating Print Wheel Axle
Accumulating Print Standard

SERIAL OUTPUT MODE SETUP

To access Serial Output Mode Setup, press the PRINT/ACCUMULATE button and ZERO button simultaneously until the message **bL tE** is displayed. Press the PRINT/ACCUMULATE button to scroll through the Menu until the message **Prt t** is displayed. Press the PRINT/ACCUMULATE button one time to display the setting number. Set the Print Mode to the number of the desired Communication Mode setting referenced in the following table. Use the LOCAL/TOTAL button to increment and the ZERO button decrement the number.

COMMUNICATION MODE	SETTING
On-Demand	0
Continuous	1
Accumulating Print Wheel Axle	2
Accumulating Print Standard	3

ATTENTION: For the best result, select one scale to be designated for Communication Mode 1, 2 or 3. The scale used to print from should be the scale selected as the Communication Mode designation. Default setting is 0.

Press the PRINT/ACCUMULATE button. The screen will display **PbAUd**. Press the PRINT/ACCUMULATE button to change the Baud Rate setting. Press the LOCAL/TOTAL button or the ZERO button to cycle through the settings.

AVAILABLE BAUD RATE SETTINGS
1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200

The Baud Rate should only be set on the scale connected to the printer. When the desired Baud Rate setting is entered, press the PRINT/ACCUMULATE button to save the setting and advance the menu. The scale can be turned off to exit the MODE Menu.

SERIAL OUTPUT SETUP

ON-DEMAND

When the scale is set in the On-Demand mode, the weight is transmitted each time the PRINT/ACCUMULATE button is pressed. Press the PRINT/ACCUMULATE button to print either the local or total weight (depending on the local/total setting of the scale). The On-Demand setting is the default print mode.

CONTINUOUS

When set in Continuous mode, the scale will automatically output the weight approximately one time per second.

DATA FORMAT

When the serial output is set to either on-demand or continuous mode, the data is transmitted in the following format: AAAAAAA BB<cr><lf>

ITEM	DEFINITION	ASCII HEX	ASCII DECIMAL
AAAAAAA	Weight		
BB	Units in lb or kg		
<cr>	Carriage Return	0D	13
<lf>	Linefeed	0A	10

The AAAAAAA field will vary in length depending on the length of the number and may contain a decimal point and/or a minus sign. The weight will be formatted as either local weight or total weight, depending on the mode selected.

ACCUMULATING PRINT

Refer to the Using Accumulated Total section for specific information about the Accumulating Print Axle and Accumulating Print Standard communication modes.

ACCUMULATED TOTAL

The LP600 scale can be used as a standalone unit, arranged in pairs, or configured in groups to measure a support load or the total weight across all of the scales connected to the system in one weighing procedure. The Accumulated Total feature accumulates the weights as each individual load is weighed.

To use the Accumulated Total feature, each scale in the system must be numbered correctly. The scale selected to print from or to display the accumulated total must have the Print Mode set to either the Accumulating Print Axle mode or the Accumulating Print Standard mode.

ACCUMULATING PRINT AXLE

If the ACCUMULATING PRINT AXLE mode has been selected for the designated scale, press the PRINT/ACCUMULATE button to add the current Total weight to the Accumulated Total weight. If the scale designated as the ACCUMULATING PRINT AXLE mode scale is connected to a printer, a print ticket will be printed. The print ticket format will reference the individual wheels and axles of the vehicle being weighed or will be formatted in a standard weight accumulation mode.

The following printout example shows a 4-scale system with two separate weighings having been conducted and accumulated.

SUBGROUP #1 WHL 1 represents scale number #1 and WHL 2 represents the second scale. AXL 1 displays the Total weight of scale number one and two. AXL2 displays the weights from scale number three and four. Both the Subtotal and Accum Total weights reflect the Subgroup #1 totals.

SUBGROUP #2 WHL 1 represents scale number #1 and WHL 2 represents the second scale. AXL 1 displays the Total weight of scale number one and two. AXL2 displays the weights from scale number three and four. The subtotal group #2 weight reflects the Total weight for the subgroup #2. The Accum Total weight reflects Subgroup #1 and Subgroup #2 totals.

PRINT/ACCUMULATE
button has been pressed →

```
WHL 1:  7460  WHL 2:  7400
  AXL 1:  14860
WHL 3: 10110  WHL 4: 10070
  AXL 2:  20180
SUBTOTAL GRP 1: 35040
ACCUM TOTAL: 35040
```

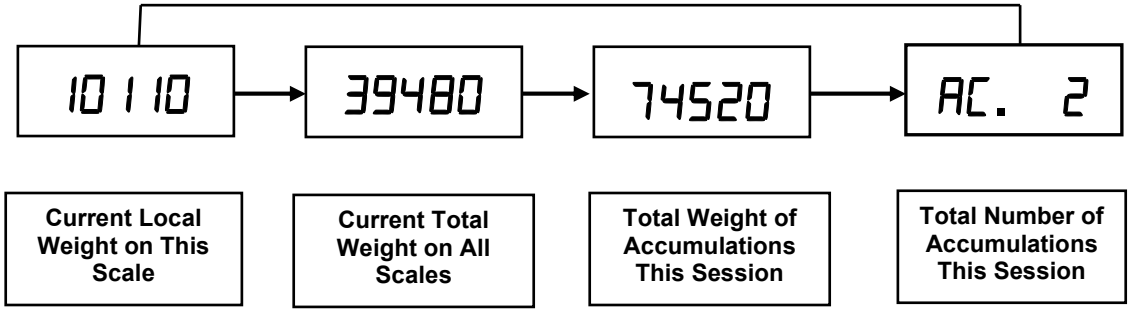
PRINT / ACCUMULATE
button has been pressed →

```
WHL 1: 10110  WHL 2: 10070
  AXL 1:  20180
WHL 3:  9800  WHL 4:  9500
  AXL 2:  19300
SUBTOTAL GRP 2: 39480
ACCUM TOTAL: 74520
```

ACCUMULATED TOTAL

Accumulating Print Axle (continued)

When a successful accumulation has occurred, press the LOCAL/TOTAL button to toggle the display through the current local weight, current total weight, accumulated total, and the number of accumulations that comprise the total weight.



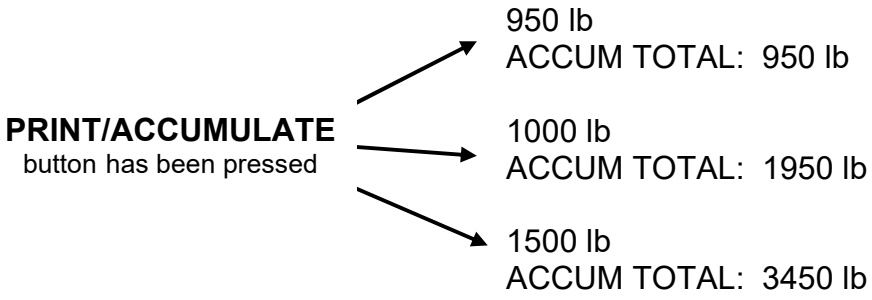
ACCUMULATE NOTE: The scale will not accumulate when the weight is negative, zero, or if the weight is in motion. An error message Ac.Err will be displayed when any of the three conditions are present. These protections ensure only valid readings are accumulated into the total. At the completion of a successful accumulation, the scale must be returned to zero before the next weight accumulation can be initiated. If an attempt is made to accumulate the next weight before allowing the scale to return to zero, the error message Ac.Err will be displayed.

The accumulated total weight can be viewed only on the designated scale. When the PRINT/ACCUMULATE button is pushed, the message Ac. **x** will be displayed as the system accumulates the next reading and sends it to print (**x** denotes the number of accumulations for the session). When a successful accumulation has occurred, press the LOCAL/TOTAL button to cycle the scale to display the number of accumulations, current local weight, current total weight on all scales and the accumulated total. When the local weight, current total weight, or accumulated total is displayed, the TOTAL icon will be illuminated, flashing or turned off.

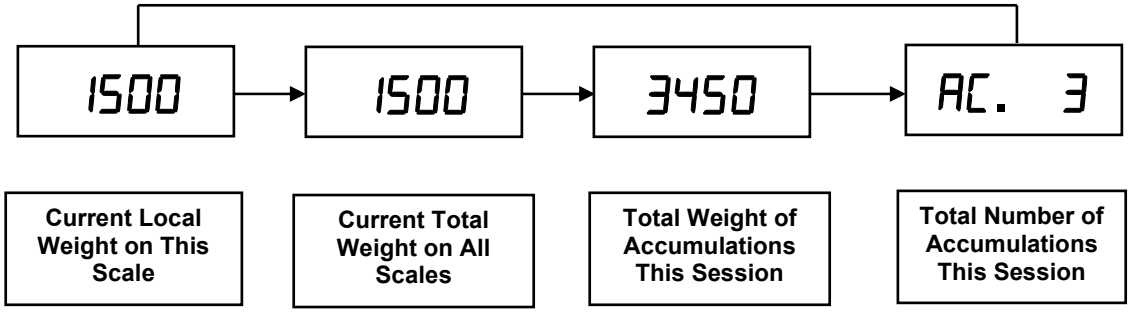
ACCUMULATED TOTAL

ACCUMULATING PRINT STANDARD

The ACCUMULATING PRINT STANDARD mode will display the total weight of multiple items weighed on one or more scales. The following example depicts a 1-scale system with three separate loads (950 lb, 1000 lb and 1500 lb) being weighed and accumulated.



When a successful accumulation has occurred, press the LOCAL/TOTAL button to toggle the display through the current local weight, current total weight, accumulated total, and the number of accumulations that comprise the total weight.



ACCUMULATE NOTE: The scale will not accumulate when the weight is negative, zero, or if the weight is in motion. An error message Ac.Err will be displayed when any of the three conditions are present. These protections ensure only valid readings are accumulated into the total. At the completion of a successful accumulation, the scale must be returned to zero before the next weight accumulation can be initiated. If an attempt is made to accumulate the next weight before allowing the scale to return to zero, the error message Ac.Err will be displayed.

ACCUMULATED TOTAL

Accumulating Print Standard (continued)

The accumulated total weight can only be viewed on the designated scale. Press the PRINT/ACCUMULATE button and the screen will display the message Ac. **x** as the system accumulates the next reading and sends it to print (**x** denotes the number of accumulations for the session). When a successful accumulation has occurred, press the LOCAL/TOTAL button to cycle the scale to display the number of accumulations, current local weight, current total weight on all scales, and the accumulated total. When the local weight, current total weight, or accumulated total is displayed, the TOTAL icon will be illuminated, flashing or turned off.

When the Accumulating Print Standard mode is enabled, the scale can accumulate in either local or total weight, but not when viewing the accumulated total.

To clear the accumulated total weight, press and hold the ZERO button until the screen displays the message CLr_t.

ACCUMULATING PROCEDURE

1. When the system has been setup and is operating correctly, select the scale to be used to accumulate the weights. Any scale can be designated. However, once selected, the scale must be used to accumulate all weights until the weighing is complete. The scale should be set to Accumulate Mode 2 or 3 (Refer to the Serial Output Setup section for additional information). If using a printer, the scale directly connected to the printer should be designated as the scale to be used for accumulation.

2. When the first group of items to be weighed is stable on the scales, press the PRINT/ACCUMULATE button. If using a printer, a print ticket with all weights will be printed. The display will return to the setting the accumulation was obtained from. The weight from the first group will become the accumulated total. The accumulated total can be displayed by pressing the LOCAL/TOTAL button when the TOTAL icon is flashing. An accumulation cannot be made in standard mode if the scale is in the Accumulation Print mode with the TOTAL icon flashing. When the accumulation is complete, remove the first group of items from the scale(s).

3. When the next group of items to be weighed is stable on the scale(s), press the PRINT/ACCUMULATE button. The total weight will be added to the accumulated total. If using a printer, a print ticket with all weights will be printed.

4. Repeat step #3 as required for additional weigh groups. If the accumulated total number exceeds the available number of digits available in the control panel screen, the message d iSP and an error icon will be displayed.

ACCUMULATED TOTAL

Accumulating Procedure (continued)

5. When finished weighing, the accumulated total weight can be cleared by pressing the ZERO button until the screen displays the message CLr.t.The display will clear the accumulated total and the number of accumulations.

ACCUMULATE NOTE: The scale will not accumulate when the weight is negative, zero, or if the weight is in motion. An error message Ac.Err will be displayed when any one of the three conditions are present. These protections ensure only valid readings are accumulated into the total. At the completion of a successful accumulation, the scale must be returned to zero before the next weight accumulation can be initiated. If an attempt is made to accumulate the next weight before allowing the scale to return to zero, error message Ac.Err will be displayed.

WEIGHING PROCEDURES

The LP600 scale can be used as a standalone unit, arranged in pairs, or configured in groups to measure a support load or the total weight across all of the scales connected to the system in one weighing procedure.

VEHICLE CRITERIA

1. All wheels of a vehicle should be measured at the same time to avoid measuring errors that may be introduced by the suspension system.
2. If it is not possible to weigh the wheels of a tandem axle or triple axle vehicle simultaneously, the differences in axle height must be compensated for by using dummy plates (grids, wood or rubber plates) of the same height. Place the wheel load scales in front of the wheels. Drive the vehicle on to the scales/plates and stop within the active weighing surface of the scale. To avoid irregular weighing caused by wheel or axle load displacements, the vehicle brakes should be released before reading the weight values.
3. It is recommended that the wheels on one axle be weighed at the same time.
4. Dummy plates can be omitted if the scales are embedded in recesses bringing the active weighing surface of the scales to the same level as the road surface.

MODE MENU

MODE MENU

To access the MODE Menu, press the PRINT/ACCUMULATE button and ZERO button simultaneously. The screen will display the message b.L itE. If the message b.L itE is not displayed, verify the Calibration Enable Jumper is in the RUN position (refer to the Calibration Enable Jumper section).

When accessing the MODE Menu, it may be necessary to enter a number (up to five digits) to access or enter a setting. Entering a number will be required when the current number is displayed with the right digit in flashing mode. The flashing digit may be incremented by pressing the LOCAL/TOTAL button. To move one digit to the left, press the ZERO button. When the desired number has been entered, press the PRINT/ACCUMULATE button. Settings are saved each time the PRINT/ACCUMULATE button is pressed to advance the menu. The scale can then be turned off.

STEP	SETTING	NOTE	DEFAULT
b.L itE	Backlight	AUto, on, oFF	AUto
SEtP 1	Set Point 1	0 to 199999	199999
SEtP2	Set Point 2	0 to 199999	199999
uEr.	Firmware Version	View Only	xxxxx
A. rt	Average Rate	1 to 120	008
A.tHrS	Average Threshold	1 to 10000	200
A oFF	Auto Off	000 = off, 1 to 240	060
Prt t	Print Mode	0 = On-Demand 1 = Continuous 2 = Accumulating Total Axle 3 = Accumulating Total Standard	0
PbAUd	Printer Baud Rate	1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200	9600
Un itS	Measurement Units	lb or kg	lb
Proto	Protocol	StAnd, Lo Pr, C.LOOP or nonE	Lo Pr
i.bAUd	Interface Baud Rate	9600 or 115200	9600
rAd io	Radio Enable	YES or NO	no
rF CH	Radio Channel	01 to 12	1
rF.PAn	Radio Network ID	0 to 65534	8000
rF.ECP	Radio Encryption Key	0 to 65534	08000
rF.dEF	Restore Radio Defaults	0 or 3	0

MENU

MODE MENU SETTINGS

1. Press the PRINT/ACCUMULATE button and ZERO button simultaneously. The screen will display the message b.L itE. Press the PRINT/ACCUMULATE button. The current Backlight setting is displayed. Press the ZERO button or the LOCAL/TOTAL button to toggle between AUTO, ON and OFF. When AUTO is selected (default setting), the backlight will automatically turn on when low level light conditions are detected. When the desired Backlight setting is displayed, press the PRINT/ACCUMULATE button to save the entry and advance to the next step.

2. The screen will display SEtP 1. Press the PRINT/ACCUMULATE button. The current Step Point 1 setting is displayed. During normal weighing mode, the S1 icon will be illuminated when the weight is greater than or equal to Set Point 1. Use the LOCAL/TOTAL button to increment the number and the ZERO button to move the flashing number to the left. When the Set Point 1 setting has been entered, press the PRINT/ACCUMULATE button to save the entry and advance to the next step.

3. The screen will display SEtP2. Press the PRINT/ACCUMULATE button. The current Set Point 2 setting is displayed. During normal weighing mode, the S2 icon will be illuminated when the weight is greater than or equal to Set Point 2. Use the LOCAL/TOTAL button to increment the number and the ZERO button to move the flashing number the left. When the Set Point 2 setting has been entered, press the PRINT/ACCUMULATE button to save the entry and advance to the next step.

4. The message uEr is displayed. Press the PRINT/ACCUMULATE button. The screen will display the current version of firmware loaded on the scale. Press the PRINT/ACCUMULATE button.

5. The screen displays the message A. rt. Press the PRINT/ACCUMULATE button. The current Average Rate setting is displayed. The setting reflects the number of readings that will be averaged together before the reading is sent to the display. Higher values will result in a more stable reading, but will take longer to process the final value. The scale updates at 4Hz, so an Average Rate of 8 equates to 2 seconds of averaging. Enter number 1 to disable averaging. Use the LOCAL/TOTAL button to the increment the number and the ZERO button to move the flashing number to the left. When the desired Average Rate setting has been entered, press the PRINT/ACCUMULATE button to save the entry and advance to the next step.

MENU

MODE Menu Settings (continued)

6. The screen will display A.tHr5. Press the PRINT/ACCUMULATE button. The current Average Threshold setting is displayed. The setting enables the Dynamic Averaging function, which can improve the settling time of a large Average Rate. If the scale detects a large weight change, it will temporarily suspend averaging, jump to the new weight, and resume averaging. Enter a value between 1 and 10000 to set the threshold (in display divisions) at which the dynamic averaging activates. Enter 0 to disable dynamic averaging. When the desired Average Threshold setting has been entered, press the PRINT/ACCUMULATE button to save the entry and advance to the next step.

7. The screen will display A. oFF. Press the PRINT/ACCUMULATE button. The current Auto-Off setting is displayed. The setting reflects the number of minutes the scale can remain idle before it automatically shuts down. Setting the number to 000 will disable the function and the scale will never automatically shut down. Use the LOCAL/TOTAL button the increment the number and the ZERO button to move the flashing number to the left. When the desired Auto-Off has been entered, press the PRINT/ACCUMULATE button to save the entry and advance to the next step.

8. The screen will display Prt t. Press the PRINT/ACCUMULATE button. The current Print Mode setting. The Print Mode setting enables one of four scale print modes.

SETTING	PRINT MODE
0	On-Demand
1	Continuous
2	Accumulating Total Axle Format
3	Accumulating Total Standard Format

Use the LOCAL/TOTAL button to increment and the ZERO button to decrement the number. When the desired print Mode setting is displayed, press the PRINT/ACCUMULATE button to save the entry and advance to the next step.

MENU

MODE Menu Settings (continued)

9. The screen will display PbAUd. Press the PRINT/ACCUMULATE button. The current Printer Baud Rate setting is displayed. Use the LOCAL/TOTAL button or the ZERO button to toggle through the available baud rates.

AVAILABLE BAUD RATE SETTINGS
1200, 2400, 4800, 9600, 19200, 38400, 57600 115200

When the required Printer Baud Rate setting is displayed, press the PRINT/ACCUMULATE button to save the entry and advance to the next step.

10. The screen will display Un itS. Press the PRINT/ACCUMULATE button. The current Unit of Measure (lb or kg) icon will flash in the upper left corner of the control panel screen. The Measurement Units function will set the scale to measure in pounds (lb) or kilograms (kg). Use the LOCAL/TOTAL button or the ZERO button to toggle between the two settings. When the desired Unit of Measure setting is flashing, press the PRINT/ACCUMULATE button to save the entry and advance to the next step.

11. The screen will display the message Proto. Press the PRINT/ACCUMULATE button. The current Protocol setting is displayed. The desired Protocol mode can be selected from one of the four settings referenced in the following table.

SETTING	MODE	FUNCTION
StAnd	Standard	Legacy setting for use in wireless and wired scale networks. Maximum number of scales that may be connected in a network is 32.
Lo Pr	Low Power	Improves wireless battery life for all non-host scales.
C.LOOP	Current Loop	Not used on the LP600 scale.
nonE	Extend Battery Life	When scales are not part of a totalizing network, battery life will be increased

Use the LOCAL/TOTAL button or the ZERO button to cycle through the settings. When the desired Protocol setting is selected, press the PRINT/ACCUMULATE button to save the entry and advance to the next step.

MENU

MODE Menu Settings (continued)

12. The screen will display i.bAUd. Press the PRINT/ACCUMULATE button. The current Interface Baud Rate setting is displayed. Two Baud Rate settings available; 9600 and 115200. Use the LOCAL/TOTAL button or the ZERO button to toggle between the settings. When the desired Baud Rate setting is selected, press the PRINT/ACCUMULATE button to save the entry and advance to the next step.

13. The screen will display rAd io. Press the PRINT/ACCUMULATE button. The current Radio Enable setting is displayed. The Radio Enable status setting is either ON or OFF. Use the LOCAL/TOTAL button or the ZERO button to toggle between the two settings. When the desired Radio Enable setting is selected, press the PRINT/ ACCUMULATE button. If NO is selected, the scale will skip the remaining radio function settings and return to normal weighing.

14. The screen will display rF CH. Press the PRINT/ACCUMULATE button. The current Radio Channel setting is displayed. All scales in a system must be set to the same radio channel setting to communicate with each other. Use the LOCAL/TOTAL button to increment the number and the ZERO button to move the flashing number to the left. When the desired Radio Channel has been entered, press the PRINT/ACCUMULATE button to save the setting and advance to the next step.

15. The screen displays rF.PAn. Press the PRINT/ACCUMULATE button. The current Personal Area Network ID setting is displayed. All scales in a system must be set to the same Personal Area Network ID setting to communicate with each other. Use the LOCAL/TOTAL button to increment the number and the ZERO button to move the flashing number to the left. When the desired ID number is entered, press the PRINT/ACCUMULATE button to save the setting and advance to the next step.

16. The screen will display rF_ECP. Press the PRINT/ACCUMULATE button. The screen will display 00000 with the right digit in flashing mode. For security purposes, the actual Encryption Key setting is not accessible for viewing and will always be displayed as 00000. Use the LOCAL/TOTAL button to increment and the ZERO button to move the flashing number to the left. To set up a new Encryption Key, enter a number between 1 and 65534. Enter 0 to retain the current Encryption Key setting. All scales in a system must be set to the same Encryption Key setting to communicate with each other. When the desired Encryption Key setting has been entered, press the PRINT/ACCUMULATE button to save the entry and advance to the next step.

MENU

MODE Menu Settings (continued)

17. The screen will display rF.dEF. Press the PRINT/ACCUMULATE button. The screen will display a flashing 0. Two settings are available under the Restore Radio Defaults feature. Select 0 to retain current settings. Select 3 to restore the default radio settings. Attempts to enter any other number will have no effect on radio setup. Use the LOCAL/TOTAL button to increment and the ZERO button to decrement the number. When the desired Restore Radio Default setting is displayed, press the PRINT/ACCUMULATE button. The scale will return to normal weighing.

ATTENTION: If the scale does not have the radio option installed, the settings rF CH, rF PAn and rF ECP, and the Radio Encryption Key can only be accessed in View Only mode.

CALIBRATION

CALIBRATION OVERVIEW

CAUTION: Several steps in the calibration process require the use of loading blocks. When using a force calibration press to calibrate the scale, the tip of the press may exert 20000 pounds of force. The LP600 Low-Profile Wheel Load Scale is designed to accept a force of 20000 pounds across the entire active weighing surface of the scale. However, the scale may not withstand a force of 20000 pounds focused on a single point.

Intercomp recommends using an aluminum loading block positioned on top of a rubber pad. During calibration, the force should be applied to the scale area much the same as if a vehicle was on the scale. Loading blocks distribute the force over the load surface similar to a tire positioned on the active weighing surface of the scale.

1. The LP600 RFX Wheel Load Scale is calibrated at the factory prior to shipment.
2. Some settings require a number (up to 5 digits) to be entered when the number is displayed with a flashing digit. The flashing digit may be incremented by pressing the LOCAL/TOTAL button. To move one digit to the left, press the ZERO button. When the desired number has been entered, press the PRINT/ACCUMULATE button. Settings are saved each time the PRINT/ACCUMULATE button is pressed to advance the menu. The scale can then be turned off after the setting is saved.

CALIBRATION VERIFICATION

CAUTION: When using a Force Calibration Press, the calibration loads should be applied to the scale platform using an aluminum block separated from the weigh platform by a rubber pad. A block and pad best simulates the load applied to the scale by a tire. Loading the scale platform without using a rubber pad and aluminum block may result in damage to the scale.

CAUTION: The Calibration Verification procedure must be performed at a Static Controlled Workstation. The electronics contained within the Control Panel are subject to damage by electrostatic discharge.

CALIBRATION

Calibration Verification (continued)

TOOLS REQUIRED

TOOL	PART NUMBER	DESCRIPTION
Force Calibration Press*	NA	Rated for scale capacity
Aluminum Loading Block	100267	17 in (± 0.25 in) x 10 in (± 0.25 in) x 2.00 in (± 0.25 in) Aluminum Calibration Block
Rubber Calibration Pad	100268-A	17 in (± 0.25 in) x 10 in (± 0.25 in) x 0.5 in (± 0.125 in) (40 to 70 Shore A rating)

* The calibration source (force calibration press or deadweights) must be able to accept a range from 10% to 100% of nominal scale capacity with a certified accuracy of 0.025% of reading or better.

CALIBRATION LOAD TABLES

The following load table should be used when conducting a Calibration Verification of the LP600 Low-Profile Wheel Load Scale.

20K CAPACITY		
TEST FORCE (lb)	**LOWER LIMIT (lb)**	**UPPER LIMIT (lb)**
0	0	0
2000	1980	2020
4000	3960	4040
6000	5940	6060
8000	7920	8080
10000	9900	10100
12000	11880	12120
14000	13860	14140
16000	15840	16160
18000	17820	18180
20000	19800	20200
0	-20	20

CALIBRATION

Calibration Verification (continued)

CALIBRATION VERIFICATION PROCEDURES

1. Transport the scales to the calibration site. If there is more than a 5°F difference in temperature between the scale temperature and the calibration site, allow the scale to reach room temperature before applying power.
2. Position the scale on the calibration fixture. Turn the scale on. Allow the scale to warm up for a minimum of 3 minutes to stabilize the scale electronics.
3. Center the rubber pad and aluminum loading block on the active weighing surface of the scale.
4. Refer to the preceding Load Verification table for the specific forces to be applied to the scale.
5. Apply each force and record the reading displayed on the scale:
6. Verify that each displayed value is within the limits referenced in the Load Verification table.
7. If the values recorded are within the referenced tolerances, continue to Corner Verification.
8. If any value is outside the acceptable limits set forth in the Load Tables, the scale requires calibration. Complete the entire Adjust Calibration procedure.

CALIBRATION

Calibration Verification (continued)

CORNER CALIBRATION VERIFICATION

The corner calibration is set at the factory prior to shipment. Adjustments to the corner settings may be required after replacing a load cell. Corners must be checked if the unit fails the Calibration Verification check.

There are six load cells installed under the active weighing surface of the LP600 Platform Scale. Figures 1 and 2 depict the two scale configurations and the load cell locations within each scale configuration.

LOAD CELL LOCATIONS

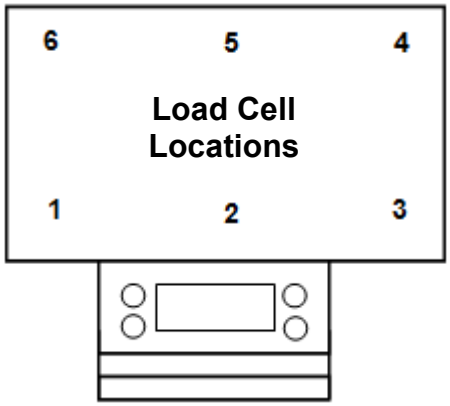


FIGURE 1

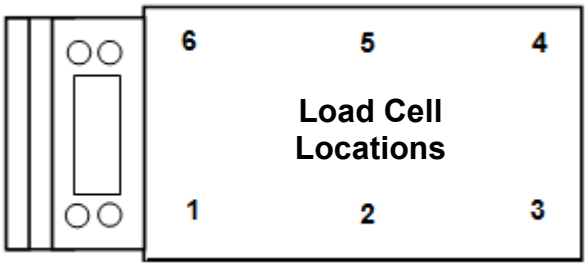


FIGURE 2

CALIBRATION

Calibration Verification (continued)

TOOLS REQUIRED

TOOL	PART NUMBER	DESCRIPTION
Force Calibration Press*	NA	Rated for scale capacity
Calibration Puck	111115	3 inch Calibration Puck
Corner Fixture	100319	LP 6 Cell Corner Alignment Fixture 15 in x 22 in
Rubber Calibration Pad	100259-A	15 in (± 0.25 in) x 22 in (± 0.25 in) x 0.5 in (± 0.125 in) Rubber Pad (40 to 70 Shore A rating)
Phillips Screwdriver	140208	#2 Phillips Screwdriver
Test Station	140210	Static Dissipation Station

* The calibration source (force calibration press or deadweights) must be able to accept a range from 10% to 100% of nominal scale capacity with a certified accuracy of 0.025% of reading or better.

CORNER CALIBRATION VERIFICATION

1. Position the rubber pad and corner fixture on the scale as depicted in Figure 3.

CORNER ALIGNMENT FIXTURE

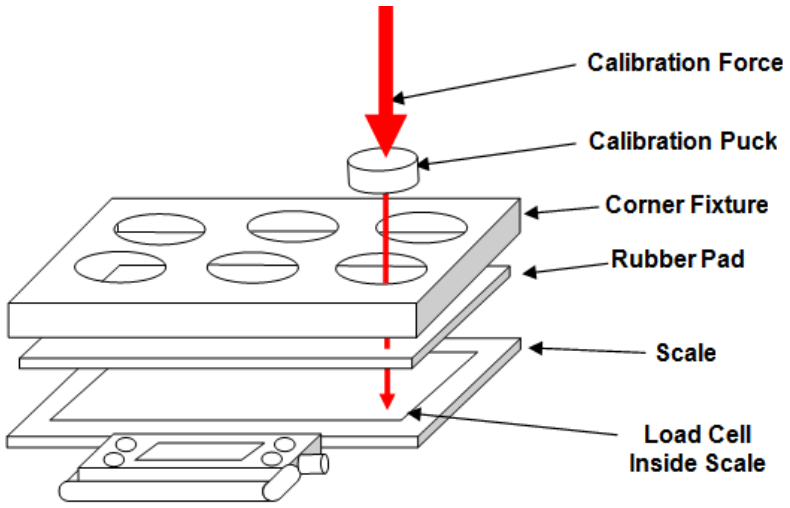


FIGURE 3

CALIBRATION

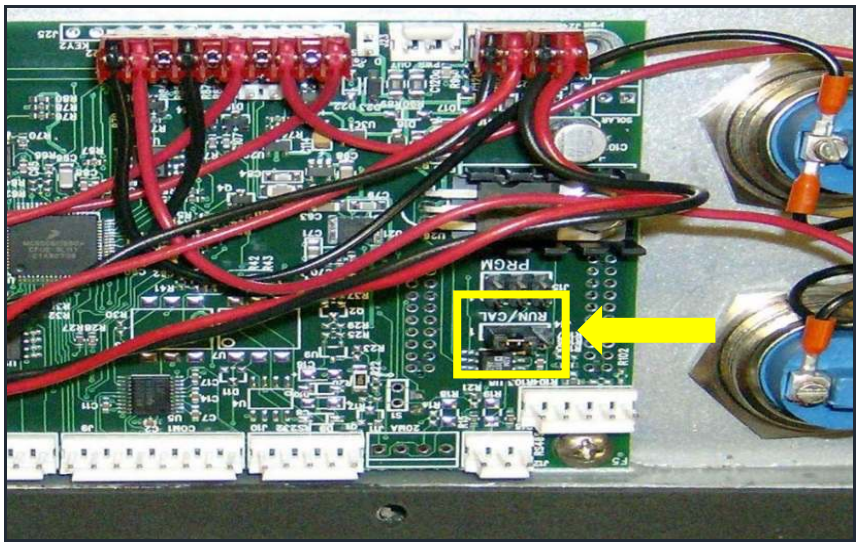
Calibration Verification (continued

2. Insert the Calibration Puck in the first load cell positon. Apply 3000 lbs to the calibration puck. Record the reading.
3. Repeat step #2 for the remaining five load cell positions.
4. If all readings are within 10 pounds the Corner verification is complete. If multiple corner checks fail, proceed to Multiple Corner adjustment. If a single corner fails, proceed to Single Corner adjustment.

CALIBRATION

CALIBRATION ENABLE JUMPER

The Calibration Enable (RUN/CAL) Jumper is a safeguard to prevent unauthorized or accidental adjustment of calibration settings. Prior to calibrating the scale, the jumper must be moved to the CAL position. The RUN/CAL jumper is located near the lower right corner of the Main Display circuit board (shown below). The jumper must be moved from shorting pins 2 and 3 (RUN) to pins 1 and 2 (CAL). Access to the RUN/CAL jumper is accomplished by removing the (12) screws securing the Indicator Frame to the display assembly. Carefully lift the assembly up and place it display side down on top of the weighing platform.



When calibration has been completed, return the Calibration Enable Jumper to the RUN position (shorting pins 2 and 3). Reassemble the display assembly and housing. Reattach the Indicator Frame to the display housing using the (12) screws initially removed from the display. The calibration settings are now safeguarded from unauthorized access.

CAUTION: Verify the wire harness is seated properly to prevent damage to the harness from pinching between the display and the scale housing.

CALIBRATION

CALIBRATION ADJUSTMENT

CAUTION: The following procedures must be performed at a Static Controlled Workstation. The control panel electronics may be subject to damage from electrostatic discharge.

CAUTION: Avoid direct contact with exposed circuitry. Use cotton gloves or similar protection when working with circuits. Oils from fingers may cause unacceptable performance in high humidity conditions. Degradation may not be obvious at the time of contamination. If circuitry becomes contaminated, clean using isopropanol or an equivalent cleaner.

CAUTION: Replacing or repairing a circuit board or load cell may affect calibration. Calibration should be verified after a part has been repaired or replaced.

TOOLS REQUIRED

TOOL	PART NUMBER	DESCRIPTION
Force Calibration Press*	NA	Rated for scale capacity
Aluminum Loading Block	100267	17 in (± 0.25 in) x 10 in (± 0.25 in) x 2.0 in (± 0.25 in) Aluminum Calibration Block
Rubber Calibration Pad	100268-A	17 in (± 0.25 in) x 10 in (± 0.25 in) x 0.5 in (± 0.125 in) (40 to 70 Shore A rating)
Test Station	140210	Static Dissipation Station
Phillips Screwdriver	140208	#2 Phillips Screwdriver

* The calibration source (force calibration press or deadweights) must be able to accept a range from 10% to 100% of nominal scale capacity with a certified accuracy of 0.025% of reading or better.

CALIBRATION

Calibration Adjustment (continued)

MULTIPLE CORNER ADJUSTMENT

Corner Calibration is set at the factory prior to shipment. It may be necessary to make adjustments to the corner settings after replacing a load cell or printed circuit board. Corner calibration must be checked if the unit fails the calibration verification check.

There are 6 load cells located beneath the active weighing surface of the LP600 scale. Figures 4 and 5 depict the load cell positions inside each scale configuration.

LOAD CELL LOCATIONS

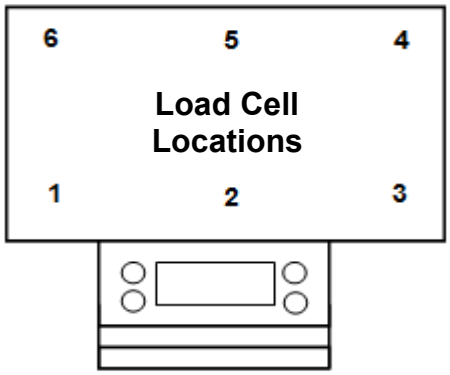


FIGURE 4

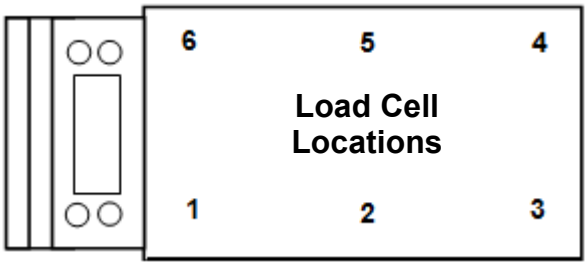


FIGURE 5

TOOLS REQUIRED

TOOL	PART NUMBER	DESCRIPTION
Force Calibration Press*	NA	Rated for scale capacity
Calibration Puck	111115	3 inch Calibration Puck
Corner Fixture	100319	LP 6 Cell Corner Alignment Fixture 15 in x 22 in
Rubber Calibration Pad	100259-A	15 in (± 0.25 in) x 22 in (± 0.25 in) x 0.5 in (± 0.125 in) Rubber Pad (40 to 70 Shore A rating)
Phillips Screwdriver	140208	#2 Phillips Screwdriver
Test Station	140210	Static Dissipation Station

* The calibration source (force calibration press or deadweights) must be able to accept a range from 10% to 100% of nominal scale capacity with a certified accuracy of 0.025% of reading or better.

CALIBRATION

Calibration Adjustment (continued)

CORNER ADJUSTMENT SETUP

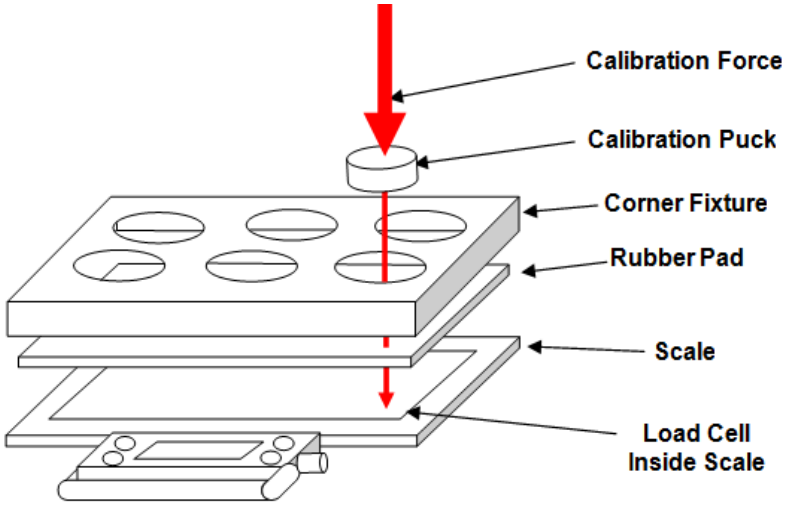


FIGURE 6

MULTIPLE CORNER ADJUSTMENT PROCEDURE

1. Press the ON/OFF button to turn the scale ON.
2. Press the PRINT/ACCUMULATE button. The screen should display StEP. If the screen displays LAt, the scale is in Normal mode. The CAL Enable Jumper must set in the CAL position. Refer to the CAL Enable Jumper section for instructions.
3. The screen will display 000. Press the lb/kg switch to increase the number until the screen displays 003. The Load Cell Balance procedure can now be accessed. Press the PRINT/ACCUMULATE button.
4. The screen displays LC.bAL. Press the PRINT/ACCUMULATE button. The screen will display a single flashing digit representing the number of load cells installed in the scale. Use the lb/kg button to increase the setting or the ZERO button to decrease the number until the screen displays 6 (the number of load cells installed in the scale). If the number is changed, the scale will save the setting and restart. If the scale restarts, go back to step 2 and resume the process. If the initial number displayed is not changed, the screen will display the message LC 00.

CALIBRATION

Calibration Adjustment (continued)

5. Press the PRINT/ACCUMULATE button to display the Zero load. Loading blocks are not required for this step.

6. The screen will display LC 1-0. Position the rubber pad and corner fixture over the active weighing surface of the scale as referenced in Figure 6. Insert the Calibration Puck in Load Cell position #1 of the fixture. With no weight on the scale except the corner fixture, press the PRINT/ACCUMULATE button.

7. The screen will display LC 1-L. Apply 1/6 of the scale capacity to Load Cell #1. When the load is applied, press the PRINT/ACCUMULATE button.

8. The screen will display LC2-0. Insert the Calibration Puck in Load Cell position #2 of the fixture. With no weight on the scale except the corner fixture, press the PRINT/ACCUMULATE button.

9. The screen will display LC2-L. Apply 1/6 of the scale capacity to Load Cell #2. When the load is applied, press the MODE switch.

10. The screen will display LC3-0. Insert the Calibration Puck in Load Cell position #3 of the fixture. With no weight on the scale except the corner fixture, press the PRINT/ACCUMULATE button.

11. The screen will display LC3-L. Apply 1/6 of the scale capacity to Load Cell #3. When the load is applied, press the PRINT/ACCUMULATE button.

12. The screen will display LC4-0. Insert the Calibration Puck in Load Cell position #4 of the fixture. With no weight on the scale except the corner fixture, press the PRINT/ACCUMULATE button.

13. The screen will display LC4-L. Apply 1/6 of the scale capacity to Load Cell #4. When the load is applied, press the PRINT/ACCUMULATE button.

14. The screen will display LC5-0. Insert the Calibration Puck in Load Cell position #5 of the fixture. With no weight on the scale except the corner fixture, press the PRINT/ACCUMULATE button.

15. The screen will display LC5-L. Apply 1/6 of the scale capacity to Load Cell #5. When the load is applied, press the PRINT/ACCUMULATE button.

16. The screen will display LC6-0. Insert the Calibration Puck in Load Cell position #6 of the fixture. With no weight on the scale except the corner fixture, press the PRINT/ACCUMULATE button.

CALIBRATION

Calibration Adjustment (continued)

17. The screen will display LC6-L. Apply 1/6 of the scale capacity to Load Cell #6. When the load is applied, press the PRINT/ACCUMULATE button.

18. The screen will momentarily display SAVE and then return to normal weighing mode. The cornering has now been internally compensated and saved. Return to the Calibration Verification section and verify all calibration parameters are within established specifications

SINGLE CORNER ADJUSTMENT

SINGLE CORNER ADJUSTMENT PROCEDURE

1. Position the corner fixture and pad on the active weighing surface of the scale referenced in Figure 6.

2. Insert the Calibration Puck in the Load Cell position requiring adjustment.

3. Press the ON/OFF button to turn the scale on.

4. Press the PRINT/ACCUMULATE button. The screen should display STEP. If the screen displays LAT, the scale is in Normal mode. The CAL Enable Jumper must set in the CAL position. Refer to the CAL Enable Jumper section for instructions.

5. Enter 20x to adjust a single corner. The x represents the cell number to be adjusted. For example, enter 202 to adjust Load Cell #2.

6. The S1 and S2 segment indicators will begin to blink indicating the Corner Adjustment mode has been enabled for the selected corner.

7. Apply 1/6 of the scale capacity to the Calibration Puck positioned over the corner to be adjusted.

8. Press the lb/kg switch to increase the weight or the ZERO button to decrease the weight on the designated corner. Each time the lb/kg button or ZERO button is pressed, the display is adjusted by approximately 0.01%.

9. When the desired weight is displayed on the scale screen, press the PRINT/ACCUMULATE button to save the result and return to normal weighing. Return to the Calibration Verification section and verify all calibration parameters have been met.

CALIBRATION

CALIBRATION MENU

Press the PRINT/ACCUMULATE and ZERO buttons simultaneously. The screen will display the message StEP. If the message StEP is not displayed, verify the RUN/CAL jumper is in the CAL position. Press the PRINT/ACCUMULATE button to access the Calibration Menu settings. To continue with calibration, enter setting 000.

During calibration, some settings may require a number to be entered (up to 5 digits). When this occurs, the current number will be displayed with the right digit in flashing mode. The flashing digit may be incremented by pressing the LOCAL/TOTAL button. Press the ZERO button to move the number one digit to the left. When the desired number has been entered, press the PRINT/ACCUMULATE button to save the entry and advance to the step. When the setting has been saved, the scale can be turned off.

STEP	SETTING	NOTE	DEFAULT
StEP	Skip	000 = Proceed Directly to Calibration Parameters 001= Proceed to Weight Calibration	000
U. EnA	Unit Enable	YES or NO	YES
bP 1	Grad Break Point 1	Enter Weight	00000
bP 2	Grad Break Point 2	Enter Weight	00000
bP 3	Grad Break Point 3	Enter weight	00000
AdC.rt	ADC Rate	0 or 1	1
no.dEt	Motion Detect	YES or NO	no
AZt	AZT (Auto Zero Tracking)	0.5 d, 0.6 d, 1 d, 3 d, oFF	1 d
ZEr0.r	Zero Range	0= off, 1= 1%, 2= 2%, 3= 5%, 4= 1%	0
GrAd	Graduation Size	0.02, 0.05, 0.1, 0.2, 0.5, 1, 2, 5, 10, 20, 50,100	d 1
SAvE	SAvE	Displays for 1 sec and advances	
CAP	Capacity	Enter scale capacity	20000
LL-01	No Weight Applied		
HH-01	First Weight	Enter first weight	
LL-01	First Weight	Load first weight	
HH-02	Second Weight	Enter second weight	
LL-02	Second Weight	Load second weight	

CALIBRATION

Calibration Menu (continued)

STEP	SETTING	NOTE	DEFAULT
HH-03	Third Weight	Enter third weight	
LL-03	Third Weight	Load third weight	
HH-04	Fourth Weight	Enter fourth weight	
LL-04	Fourth Weight	Load fourth weight	
***	Up to 10 Calibration Points	Minimum of a 3-point calibration recommended	***

CALIBRATION SETTINGS

During the calibration process, all calibration data saved up to and including the last completed step will be retained if power to the scale is turned off.

1. To begin calibration, press the PRINT/ACCUMULATE button and the ZERO button simultaneously. The scale will display the message StEP. Press the PRINT/ACCUMULATE button. The number 000 will be displayed with the right digit flashing. To continue through all of the calibration parameters, press the PRINT/ACCUMULATE button to continue setting calibration parameters. To conduct a weight calibration only (commencing with step 10), while skipping the first 8 calibration parameters, enter the setting 001. Use the LOCAL/TOTAL button to increment and the ZERO button to decrement the number. Press the PRINT/ACCUMULATE button when the desired setting is displayed.

2. The screen will display U. EnA if proceeding through all calibration parameters. Press the PRINT/ACCUMULATE button. The screen displays YES. The YES setting allows the UNIT OF MEASURE to be changed in the MODE Menu. Press the LOCAL/TOTAL or the ZERO button to toggle through the available selections; YES or no. Press the PRINT/ACCUMULATE button to save the YES setting and permit the weight UNIT OF MEASURE setting to be managed in the MODE Menu.

3. The screen will display the message bP 1. Press the PRINT/ACCUMULATE button. The current graduation BREAK POINT 1 setting is displayed. Use the LOCAL/TOTAL button to increment the number and the ZERO button to move the flashing number to the left. When the desired graduation BREAK POINT 1 setting is displayed, press the PRINT/ACCUMULATE button to save the entry. Refer to the following Multiple Graduation Break Points section for additional information.

CALIBRATION

Calibration Settings (continued)

MULTIPLE GRADUATION BREAK POINTS

The LP600 scale can be set for multiple graduation break point values. An example of a scale set for three graduation break points is presented below.

MULTIPLE GRADUATION BREAK POINTS
Grad = Initial graduation equals by 0.1 lb
Cap = 10000 (Capacity equals 10,000 lb)
bP 1 = 1000
bP 2 = 2000
bP 3 = 5000

Using the break point settings from the previous example, the scale would display the following information.

WEIGHT (lb)	GRAD	WEIGHT (kg)	GRAD
up to 1000 lb	by 0.1 lb	up to 453.55 kg	by 0.05 kg
1000+ to 2000 lb	by 0.2 lb	453.55+ to 907.1 kg	by 0.1 kg
2000+ to 5000 lb	by 0.5 lb	907.1+ to 2267.8 kg	by 0.2 kg
5000+ lb	by 1.0 lb	2267.8+ kg	by 0.5 kg

To disable the break points, the Graduation Break Point settings should be set to 110% of the capacity. The scale uses the same graduation from zero to capacity. Setting the break point to 110% of capacity effectively disables the break point feature.

4. The screen will display bP 2. Press the PRINT/ACCUMULATE button. The current graduation BREAK POINT 2 setting is displayed. Use the LOCAL/TOTAL button to increment the number and the ZERO button to move the flashing number to the left. When the desired graduation BREAK POINT 2 setting is displayed press the PRINT/ACCUMULATE button to save the entry.

5. The screen will display bP 3. Press the PRINT/ACCUMULATE button. The current graduation BREAK POINT 3 setting is displayed. Use the LOCAL/TOTAL button to increment the number and the ZERO button to move the flashing number to the left. When the desired graduation BREAK POINT 3 setting is displayed press the PRINT/ACCUMULATE button to save the entry.

CALIBRATION

Calibration Settings (continued)

6. The screen will display AdC.rt. Press the PRINT/ACCUMULATE button. The current ANALOG to DIGITAL CONVERSION (ADC) Rate setting is displayed. There are two ADC Rate settings available; 0 and 1. Select the 0 setting to achieve a full conversion time and the most stable results. Selecting a setting of 1 will result in a reduced conversion time, but will extend battery life. Intercomp recommends the ADC Rate be set to 1. Use the LOCAL/TOTAL button to increment and the ZERO button to decrement the number. When the desired ADC setting has been selected, press the PRINT/ACCUMULATE button to save the entry.

WARNING: When the ADC Rate setting is changed, the scale must be re-calibrated.

7. The screen will display no.dEt. Press the PRINT/ACCUMULATE button. The current MOTION DETECT setting is displayed. Two settings are available; YES or no. Press the LOCAL/TOTAL button or the ZERO button to toggle between the two settings. When the desired setting is displayed, press the PRINT/ACCUMULATE button to save the entry.

SETTING	FUNCTION
no	Zeroing is always enabled
YES	Zeroing will be disabled if motion is detected

8. The screen will display AZt. Press the PRINT/ACCUMULATE button. The current AUTO ZERO TRACKING (AZT) setting is displayed. Press the LOCAL/TOTAL button or the ZERO button to cycle through the available AZT settings.

AZT SETTINGS
0.5 d, 0.6 d, 1 d, 3 d, oFF

If the displayed weight is less than the number of grads shown for a given amount of time, the weight will be zeroed off. When the desired AUTO ZERO TRACKING setting is displayed, press the PRINT/ACCUMULATE button to save the entry.

CALIBRATION

Calibration Settings (continued)

9. The screen displays ZERO.r. Press the PRINT/ACCUMULATE button. The current ZERO Range setting is displayed. Use the LOCAL/TOTAL button to increment and the ZERO button to decrement the number. The ZERO Range setting is the percentage the zero can move from the original zero obtained at calibration.

The ZERO button will not work if outside the zero range. The message ZERO.r with an error icon illuminated is displayed if the ZERO Range is set to 1, 2 or 3. If a setting between 4 and 6 is selected, the ZERO button will not function when an attempt is made to zero the scale outside the range. When the ZERO Range setting has been entered, press the PRINT/ACCUMULATE button to save the entry.

ZERO RANGE SETTINGS
0=OFF
1=1%, 2=2%, 3=3%
4=1%, 5=2%, 6=5%

10. The screen will display GrAd. Press the PRINT/ACCUMULATE button. The current GRADUATION SIZE setting is displayed. Press the LOCAL/TOTAL button or the ZERO button to cycle through the Graduation options. When the desired GRADUATION setting is displayed, press the PRINT/ACCUMULATE button to save the entry.

GRADUATION SETTINGS
0.02, 0.05, 0.1, 0.2, 0.5
1, 2, 5, 10, 20, 50, 100

At the completion of step 10, the message SAVE will be displayed for approximately 1 second and then advance to display the message CAP. The scale is now ready to proceed with weight calibration.

Step number 11 continues under the Weight Calibration section.

CALIBRATION

WEIGHT CALIBRATION

The LP600 scale employs a 10-Point calibration process. A multiple-point calibration improves weighing performance by removing undesirable characteristics inherent to the load cells. One to ten load weights must be available to conduct a multi-point calibration. A Calibration Press is required to apply the loads to the scale.

A typical weight calibration consists of a three-point calibration. Three different and optimal loads are applied and entered (not including the zero point). If three different weights are not available, a one or two point calibration may be performed. To calibrate the scale using a single point, turn off scale after completing step 14 referenced below. To calibrate the scale using two points, turn off the scale after completing step 16.

WEIGHT CALIBRATION PROCEDURE

Weight Calibration is a continuation of the procedure that ended at step 10 under the Setting Calibration Parameters section.

11. At the completion of step 10, the message SAVE will be displayed for approximately (1) second and then advance to display the message CAP. Press the PRINT/ACCUMULATE button. The current CAPACITY setting will be displayed. Enter the capacity of the scale. Press the LOCAL/TOTAL button to the increment the number and the ZERO button the move the flashing number to the left. Press the PRINT/ACCUMULATE button to save the setting.

12. The screen will display LL-00. Verify there is no weight applied to the scale. Press the PRINT/ACCUMULATE button.

13. The screen displays HH-01. Press the PRINT/ACCUMULATE button. The screen will display 00000 with the right digit flashing. Enter the weight of the first load. Press the LOCAL/TOTAL button to increment the number. Press the ZERO button to move the flashing number to the left. When the weight for the first load has been entered, press the PRINT/ACCUMULATE button to save the setting.

14. The screen will display LL-01. Apply the first load to the scale. When the first load is applied, press the PRINT/ACCUMULATE button.

15. The screen displays HH-02. Press the PRINT/ACCUMULATE button. The number 00000 is displayed with the right digit flashing. Enter the weight of the second load. Press the LOCAL/TOTAL button to increment the number. Press the ZERO button to move the flashing number to the left. When the weight for the second load has been entered, press the PRINT/ACCUMULATE button to save the setting.

CALIBRATION

Weight Calibration (continued)

16. The screen will display LL-02. Apply the second load to the scale. When the second load is applied, press the PRINT/ACCUMULATE button.

17. The screen displays HH-03. Press the PRINT/ACCUMULATE button. The number 00000 is displayed with the right digit flashing. Enter the weight of the third load. Press the LOCAL/TOTAL button to increment the number and the ZERO button to move the flashing number to the left. When the weight for the third load has been entered, press the PRINT/ACCUMULATE button to save the setting.

18. The screen will display LL-03. Apply the third load to the scale. When the third load is applied, press PRINT/ACCUMULATE button.

19. The screen displays HH-04. Press the PRINT/ACCUMULATE button. The display will show 00000 with the right digit flashing. Enter the weight of the fourth load. Press the LOCAL/TOTAL button to advance the number. Press the ZERO button to move the flashing number to the left. When the weight for the fourth load has been entered, press the PRINT/ACCUMULATE button to save the setting.

20. The screen will display LL-04. Apply the fourth load to the scale. When the fourth load is applied, press the PRINT/ACCUMULATE button.

Repeat step 12 and 13 for each additional calibration point (HH-05 to HH- 10) and (LL-05 to LL- 10) combination. If the scale is turned off at any time during the calibration, all data acquired to that point will be retained. When the last calibration point has been completed, press the PRINT/ACCUMULATE button and the scale will return to normal weighing mode.

CALIBRATION COMPLETION

When calibration has been completed, return the Calibration Enable Jumper to the RUN position (shorting pins 2 and 3). Reassemble the display assembly and housing. Reattach the Indicator Frame to the display housing using the (12) screws initially removed from the display. The calibration settings are now safeguarded from unauthorized access.

CAUTION: Verify the wire harness is seated properly to prevent damage to the harness from pinching between the display and the scale housing.

TROUBLESHOOTING

ERROR MESSAGES

MESSAGE	DEFINITION
EEPE	**EEPROM Failure Calibration Information Lost or Corrupted**
Calibration information is held in a special permanent memory area. A checksum code is generated and written to the memory during the calibration process. Each time power is turned on, the code is regenerated and compared to the stored value. If a change is detected, the error message is displayed. Recalibration may clear the error display. If problem persists, replace the control panel.	
Ad 1	**A/D CONVERTER FAILURE**
The A/D circuit board has detected a fault and will need to be repaired or replaced.	
LCbxx	**Power Up Self-Test Detected One or Multiple Load Cell Errors**
A load cell may have failed or there is a bad connection. The **xx** designation references the cell or connection that has failed. A single digit (**xx** = 1 - 8) denotes a single load cell failure. A two-digit value for the **xx** designation is a code to indicate multiple cells have failed or are disconnected.	
LC xx	**Run-Time Checking Detected One or Multiple Load Cell Errors**
A load cell circuit may have failed or there is a bad connection. The **xx** designation references the cell or connection that has failed. A single digit (**xx** = 1 - 8) denotes a single load cell failure. A two-digit value for the xx designation is a code to indicate multiple cells have failed or are disconnected.	
Lo.bAt	**Low Battery Voltage**
Indicates control panel has measured a low battery voltage. Most likely cause is the battery stick requires charging. If the Battery Power Level Segment Bar fails to cycle when the charger is plugged in, the charger or cable may be defective. When batteries have been charged for the recommended time and fail to run for the specified duration, the battery stick may need to be replaced. If a new battery stick fails to correct the situation, then the control panel may need to be replaced. Additionally, the battery holder and wiring should be inspected.	
CAP	**Overload Condition. Calibration Information Lost or Bad Load Cell**
The control panel has detected a weight reading that is larger than expected. Error may be caused by application of excess weight to the platform. If the message is displayed when there is no weight on the platform, a likely source may be a defective load cell or defective control panel. To isolate the problem, measure the signal across pins two and three on the control panel load cell connector. The reading should be between zero and one millivolt. If reading is higher or lower, inspect the load cell system. If the signal is within range, calibration data may be lost. Attempt to recalibrate the scale. If calibration does not clear the problem, replace the control panel.	
2Er0.r	**Zero Range Error**
Scale attempted to zero off a load outside the range specified in the zero range setting. Remove load and press the ZERO button.	

TROUBLESHOOTING

Error Messages (continued)

MESSAGE	DEFINITION
d iSP	**Number Cannot be Displayed**(example: -99999)
Common source of error is pressing the ZERO button with a full load on the scale. When the load is removed, the full number with a minus sign will not fit on the display. Remove the load and press the ZERO button again to clear display.	
COP or CLOC	**Diagnostic Power Up Message**
COP and CLOC errors do not affect normal scale operation and can typically be ignored.	
tot	**Totalizing Setup Error**
Press the LOCAL/TOTAL button to change to the standard LOCAL display. If error remains, the scale may require a new Totalizing Setup. Refer to the Totalizing Setup section for instructions.	
-mot-	**Motion Detected When Attempting to Zero With Motion Detection Enabled**
When the Motion Detection feature is enabled, the error message -mot- is displayed when motion is detected while attempting to zero the scale. Wait for the load to stabilize before attempting to re-zero the scale.	
Lo	**Underload Condition**
The control panel has detected a reading that is less the -20 divisions. Remove any load and press the ZERO button.	

TROUBLESHOOTING

TROUBLESHOOTING TABLE

SYMPTOM	No Power Up. Blank Display
If power reaches the control panel, the display driver turns on random segments. The display screen is blank. Potential Sources: 1. Defective wiring harness. Inspect for damaged wiring. 2. Defective battery stick. Measure battery voltage, charge or replace if required 3. Defective ON/OFF button: Bridge the ON/OFF button to see if the scale powers up. 4. Defective circuitry: Replace control panel. The power supply may be delivering power, but it could be diminished by a defective circuit board or cable. Unplug the load cell cable. If the scale powers up, a load cell lead may be shorted. Turn the power off and test each cell lead. Inspect for a damaged cable.	
SYMPTOM	**Power Up to Random Display**
Power is reaching the display driver circuit, but the control panel is not working correctly. Test for low battery voltage. Inspect for visible damage. Replace the control panel if damage is detected or low battery conditions are not found.	
SYMPTOM	**Scale Shuts OFF**
If the scale turns off immediately when the ON/OFF button is released, the cause may be low batteries. If battery power is sufficient, replace the control panel.	
SYMPTOM	**Locks Up**
The scale may be programmed incorrectly. Restore the correct control settings. If the Average Rate setting is very high, an active load may not update the display quickly and may be interpreted as a lock up.	
SYMPTOM	**No Backlight**
Cover the light sensor window. If the backlight does not turn on, replace the control panel. The backlight is not visible in bright sunlight.	
SYMPTOM	**Slow Operation**
Slow operation may be caused by a programmed change in the filter setting resulting in a tradeoff between speed and stability of the display reading. The filter setting may be tuned by changing the Average Rate setting.	
SYMPTOM	**Jumpy or Drifting Weight**
May be traced to contamination on circuit boards or a bad load cell. May also be caused by a rapid change in temperature. The scale requires a minimum of one-hour acclimation time for each 10 degrees Fahrenheit change in temperature. Another source could be powerful radio interference.	
SYMPTOM	**No Response From One or More Buttons**
The switch may be defective. The control panel may be defective. The ZERO button does not function when the scale is in motion is not a defect. The scale may be programmed to ignore the ZERO button if the weight on the platform exceeds a specified amount.	

TROUBLESHOOTING

Troubleshooting Table (continued)

SYMPTOM	Bad Weights
Check the weighing process. 1. Are there air currents around the vehicle being weighed? 2. Are the operators using dummy pads on wheels not positioned on the scales? 3. Are the scales on level ground? 4. Is the scale set to the wrong unit setting? 5. Is a new operator using the scales? 6. If using a calibration press, are weight distribution blocks and rubber pads being used? Is the reference scale correct? 7. Is the scale spanned correctly? If the reading is exactly 1/2 of the expected value, one of the load cell leads may not be providing signal, most likely in the load cell or control circuit. The interconnecting wiring or cables may be pinched, cut or damaged.	

SYMPTOM	Batteries Will Not Charge
Inspect the battery stick. The charging circuit could be defective. Check for bad connections or a defective charging cable. Inspect the power source; plug-in transformer, transport cart or automotive ignition. Remove the battery cap with the scale plugged into the charger. If the scale turns on then the charger is working.	

CAUTION: Replacing or repairing a circuit board or load cell may affect calibration. Calibration should be verified after a part has been repaired or replaced.

TROUBLESHOOTING

CALIBRATION STEP CODES

The following Calibration Step Codes offer a number of options that may be used during Calibration or performing scale diagnostic activities.

To access Diagnostic Settings, the Calibration Menu must be enabled. Verify the CAL Enable Jumper is set in the CAL position. Press the PRINT/ACCUMULATE button and the ZERO button simultaneously. The message StEP should be displayed. Press the PRINT/ACCUMULATE button. The number 000 will be displayed with the right digit flashing. Enter the desired CAL Mode setting from the codes referenced in the table. Use the LOCAL/TOTAL button to increment and the ZERO button to decrement the number. Press the PRINT/ACCUMULATE button when the desired setting is displayed.

CAL MODE	ENTER CAL MODE # AFTER ENTERING StEP in CAL MENU Diagnostic Use Only - Contact Intercomp Service Before Proceeding
000	Advance through normal Calibration Menu
001	Advance to Inclinometer Calibration
002	Advance to Weight Calibration
003	Access Corner Calibration (also set the number of load cell inputs)
005	Access MODE Menu. This is same menu that is accessed when Cal strap is in the Normal Run position and Calibration Mode is disabled
101	Angle display diagnostic
111	Individual cell read diagnostic. Enter specific load cell number 1 - 8
121	Raw Counts display diagnostic. 0mV/V ≈ 131000. 8385 counts per mV/V. This is an average of all cells. To view Raw Counts from an individual CH, enter code 111 and select cell number 1-x
131	Constant power to all load cells diagnostic
201-208	Corner adjust cell 1 - 8. (Example: Entering 202 will access CAL Mode to adjust cell #2)
311	Default and save all radio settings to the radio
711	Default and save all settings (leave calibration and cornering untouched)
811	Reset corner compensation to nominal values
911	***CAUTION*** Restore all settings to factory defaults. Entering CAL Mode setting 911 will erase all calibration and cornering data

TROUBLESHOOTING

DIAGNOSTIC TESTS

CHARGER VOLTAGE

CAUTION: When using a meter to measure voltage or current, verify the correct measurement mode (voltage or current) is selected. Pay special attention that the correct polarity is observed when connecting test leads to battery compartment connectors.

1. Verify that the scale is turned off during the charger voltage test.
2. Remove the batteries.
3. Connect a meter across the battery compartment connectors being careful to observe correct polarity.
4. Plug in the battery charger. The voltage should measure approximately 14.5 VDC.
5. Unplug the battery charger and reinstall the batteries.
6. Measure the voltage across the batteries. Depending on the charge level of the batteries, the voltage should be between 3.6 to 5.8 VDC.
7. Plug in the charger. The voltage measured across the batteries should increase. If the correct voltage response is not observed, unplug the battery charger. Remove one of the batteries and connect a meter set to measure Current to the battery compartment connectors. Verify the correct polarity is observed. Plug the battery charger in. The meter should read between 25 and 75 mA DC.

LAMP

Cover the light sensor. The backlight should light up. It may be difficult to see the backlight in direct sunlight.

BUTTONS

1. Press the ON/OFF button. The scale should turn on.
2. Press the lb/kg button. The unit of measure displayed on the screen should change from lb to kg.
3. Apply a load to the scale between 50 lb and 250 lbs. When the weight displayed has stabilized, press the ZERO button. The scale should display a Zero weight.
4. Press the ON/OFF button. The scale should turn off.

TROUBLESHOOTING

Diagnostic Tests (continued)

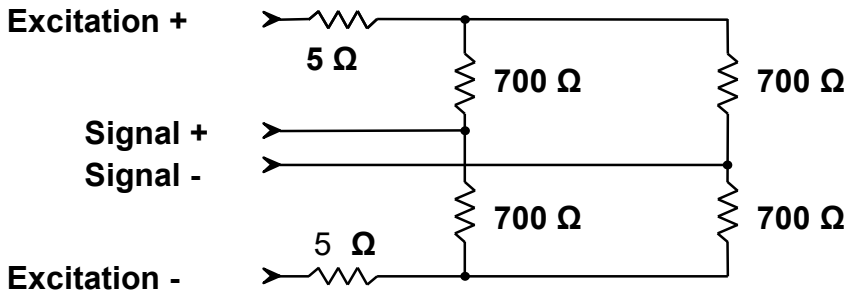
POWER DOWN SHUTOFF

1. Connect a variable power supply to the input connector. Remove the batteries.
2. Connect the meter to the positive battery lead.
3. Set the supply to 6V. Turn the scale on.
4. Reduce the input voltage until the scale turns off. The voltage at shutoff should be between 3.2 and 3.5 Volts.

LOAD CELLS

The LP600 Scale contains (6) load cells. The load cells are transducers that convert mechanical energy (weight) to electrical energy.

Each load cell contains (4) strain gages (700Ω) and two temperature compensation resistors. The four strain gages are wired together to form a Wheatstone Bridge as depicted below.



WHEATSTONE BRIDGE SCHEMATIC DIAGRAM

The 5Ω BALCO resistors installed in series with the Excitation leads are used for temperature compensation. BALCO resistors maintain a constant signal voltage by adjusting resistance associated with fluctuations in temperature. The BALCO resistors used in LP600 load cells are manufactured exclusively for Intercomp. The following table references load cell lead color coding.

LEAD COLOR	FUNCTION
RED	+ Excitation (3.3 Volts)
GREEN	+ Signal
WHITE	- Signal
BLACK	- Excitation (ground)

TROUBLESHOOTING

Diagnostic Tests (continued)

CHECK LOAD CELL ZERO OUTPUT VALUES

The signal at the main circuit board with the signal leads in place should be approximately 0.1 millivolts with no load applied to the load cell. If a larger value is detected, it could indicate a defective load cell, wiring or circuit board. The load cell must be tested separately to determine the source of the Zero shift.

1. A power supply set to +3.3 Volts can be used to provide the excitation voltage for the measurement.
2. Connect + 3.3 volts to the red lead and ground to the black lead.

ATTENTION: The scale can also be used to provide the excitation voltage with the two excitation leads (Black and Red) connected. Turn on the scale to apply the excitation voltage.

3. Connect a meter capable of monitoring millivolt readings between the positive and negative signal leads (Green and White). The zero signal output with excitation voltage applied should measure between -1.00 to +1.00 millivolts. A larger value would indicate a defective load cell, most likely the result of an overload of the load cell during use.

CHECK LOAD CELL RESISTANCE VALUES

Load cell resistance can vary depending on load cell model and capacity. Load cell resistance will be one of the standard resistance values referenced in the following table.

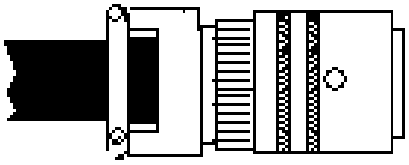
NOMINAL CELL RESISTANCE		350 Ω	700 Ω	1000 Ω
Black - Red	=	385 Ω	770 Ω	1082 Ω
Black - Green	=	285 Ω	595 Ω	748 Ω
Black - White	=	285 Ω	595 Ω	748 Ω
White - Green	=	350 Ω	701 Ω	1000 Ω

When the load cells are disconnected, the resistance readings should be within the values referenced in the table. It can be normal for the readings to be higher or lower (by several percent) than the values referenced in the table. If there is difference of several Ohms between the Black-Green and Black-White measurements, the load cell is defective, indicating either an open or short.

MAINTENANCE

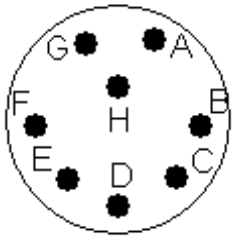
PT CONNECTOR

The following diagram depicts the pin-out for the PT connector that is located on the right side of the LP600 control panel.



PT CONNECTOR

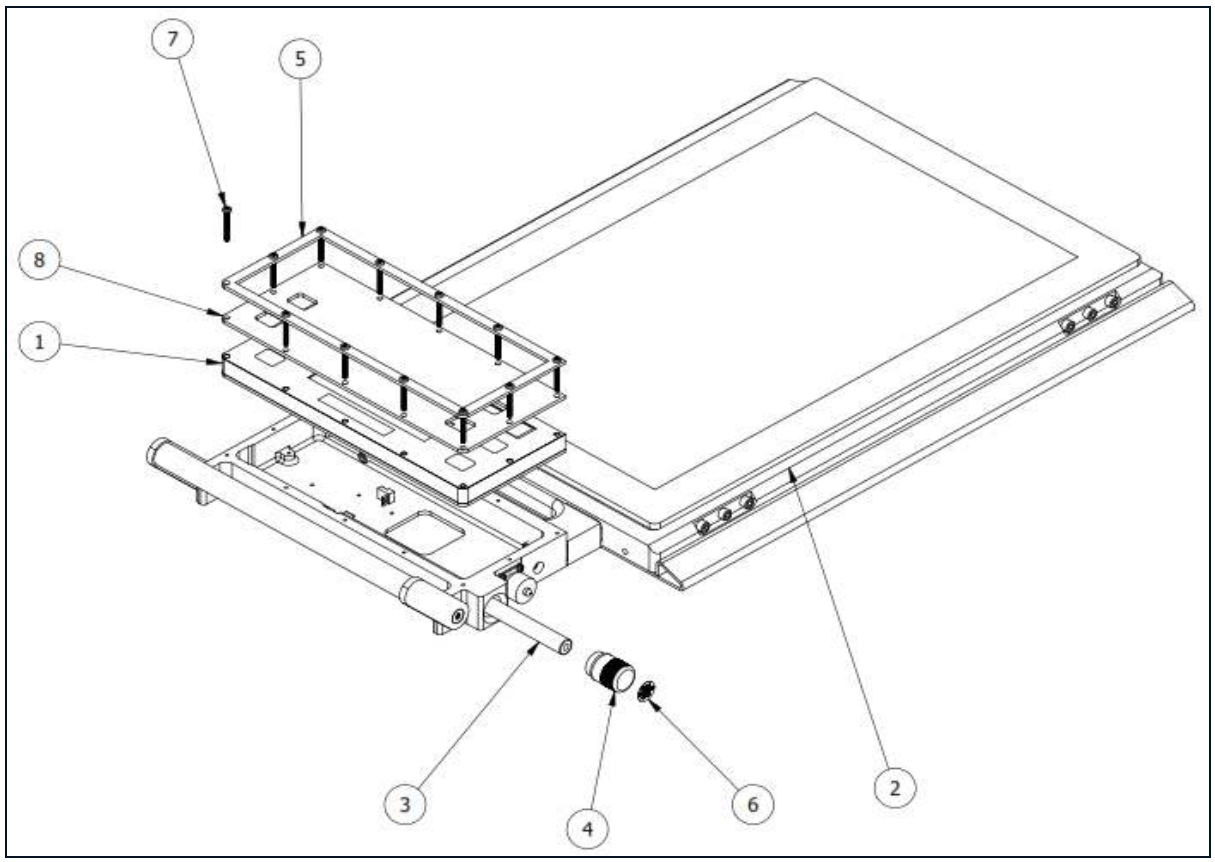
A: RS-485 A
B: TXD (RS232)
C: - Charging Voltage
D: None
E: +Charging Voltage
F: Ground
G: RS485 B
H: None



PT CONNECTOR PIN-OUT DIAGRAM

ILLUSTRATED PARTS BREAKDOWN

LP600 SCALE ASSEMBLY



INDEX	QTY	PART NUMBER	DESCRIPTION
1	1	0200355	LP600 INDICATOR ASSY-SILVER-ADE GEN II SOLAR
2	1	506584	LP 600 SCALE ASSEMBLY 20K
3	1	330158	BATTERY STICK (4) AA NIMH
4	1	000425	BATTERY CAP ASSEMBLY
5	1	8030025	POWDER COAT LP600 INDICATOR HOUSING BEZEL
6	1	2505527	LABEL, NIMH BATTERIES ONLY
7	12	600814	6-32UNC X 1.25 SS SCREW
8	1	5203117	LP600 KEYPAD PROTECTOR

HOW TO CONTACT INTERCOMP SERVICE

Please provide the following information when requesting service for the LP600 Low-Profile Wheel Load Scale.

1. Item Description and Part Number (if available)
2. Serial Number(s) of Item (if available)
3. When was item purchased (mm/yyyy)?
4. Where was item purchased (company/location)?

For Intercomp Service call or fax:

MAIN OFFICE: 763-476-2531
TOLL FREE: 1-800-328-3336
FAX: 763-476-2613

Or complete the Service Support request form at:
http://www.intercompcompany.com/service-contact.html

NOTES

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