



DS-520

Digital Indicator

Operation Manual

DS-520 SERIES OPERATING MANUAL

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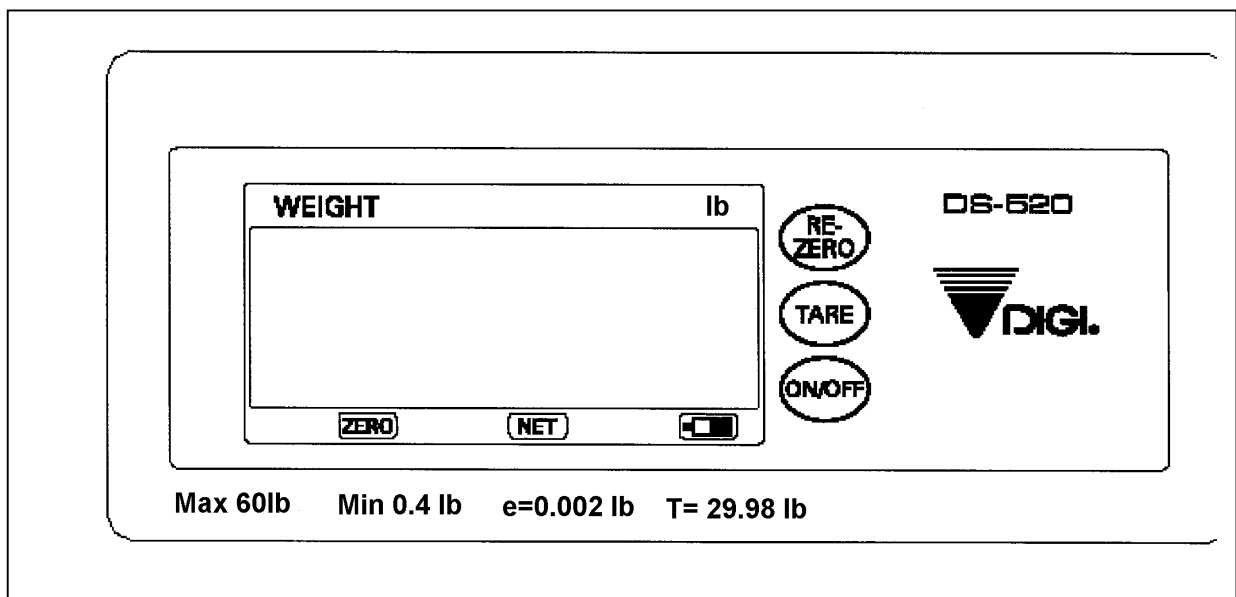
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1.0. GENERAL

1.1. Features

- Wash down (IP-65) digital weighing scale
- Quick response to weight changes
- Capacity: 60 lb, 150 lb, 300 lb
- Resolution:
 - A. Display resolution 1/1000 (multi range) internal res. 1/6000
 - B. Display resolution 1/3000 (single range) internal res. 1/24000
- Low power consumption : 6 x C cell batteries for more than 200 hours of continuous use
- Fast self test procedure when power on
- Selectable automatic shut off time which prolongs battery life
- Two point low battery detect:
 - A. When battery is weak, the battery indicator will light
 - B. When the power from the battery becomes too low to weigh accurately, all displays will shut off except the battery indicator. The power is shut off after 1 minute.
- Calibration by software
- High contrast LCD display
- 3 keys REZERO key, TARE key, ON/OFF key
- Stainless steel platform and indicator housing

1.2. Keyboard & Display Panel Layout



1.3. Key Functions

- **REZERO Key** Reset weight display to zero
- **TARE Key** Set or clear a tare
- **ON/OFF Key** Turn the power ON or OFF

1.4. Indicators Lamps

- **Zero** On when zero point is adjusted and when weight is stable
- **Net** On when tare reduction is performed
- **Battery** On when battery is weak

2.0. SPECIFICATIONS

2.1.1. Technical Specifications

This section includes a detailed listing of all pertinent specifications and parameters for the DS-520 weighing scales. The system weighing accuracy is 0.03 % . All models meet or exceed the requirements of OIML, Class III, and NIST Handbook, Number 44.

2.1.2. Operating conditions

- Power source 12VDC w/DC adapter or 9VDC w/6 “C” cell battery
- Operating temperature $-10^{\circ}\text{C} \approx +40^{\circ}\text{C}$ (OIML)
- Operating humidity 15 – 85% RH
- Power consumption 0.07w when 6V, 0.1w when 9V

2.1.3. Analog specification

- Input sensitivity 0.67mV/V- 10kg & 20kg, all other capacities 1mV/V
- Zero adjust range 40% Full Scale
- Zero balance range 10% Full Scale
- L/C applied voltage DC 5V
- Speed of A/D conversion 4 times /sec.
- Internal resolution 16000 or 24000

2.1.4. Display Specification

- Weight display 6 digits with ZERO, TARE, LOW BATTERY indication
- Spec Display 6 digits
- Decimal Point Spec Selectable

2.1.5. Dimensions

- Platter size 16"L x 16"W x 4 _"H
- Overall size 22 _"L x 16"W x 4 _"H
- Tall column 18 _"L x 16"W x 36" Overall height

2.1.6. External connectors

- DC receptacle

3.0. INSTALLATION

This section provides the information required for installing this weighing system for operation. The following steps accomplish installation.

1. Unpacking
2. Set-up Procedure

3.1. Unpacking

Each component of the DS-520 system is packed in a specially designed carton. Remove each component from its carton, separate the component from its polystyrene shell assembly and set aside. Inspect the carton interior to be sure that all accessories have been removed from the carton. Inspect the carton inner panels for accessories.

NOTE: Be sure to repack all materials within the carton set. Store the cartons in a secure area so they can be available whenever future shipment of the scale is required.

3.2. Inspection

Immediately after unpacking, a visual inspection of the scale should be performed. If any damage has been incurred during transportation notify the shipper and Rice Lake Weighing systems immediately. Instructions for assessment of damage and further procedures will then be determined.

3.3. Repackaging

If, at anytime, the DS-520 weighing scale must be returned for modification, calibration, or repair, be sure that it is properly packed with sufficient cushioning materials. Whenever possible, the original carton assembly should be retained for this purpose. Any damage caused by improper packaging will not be covered by warranty.

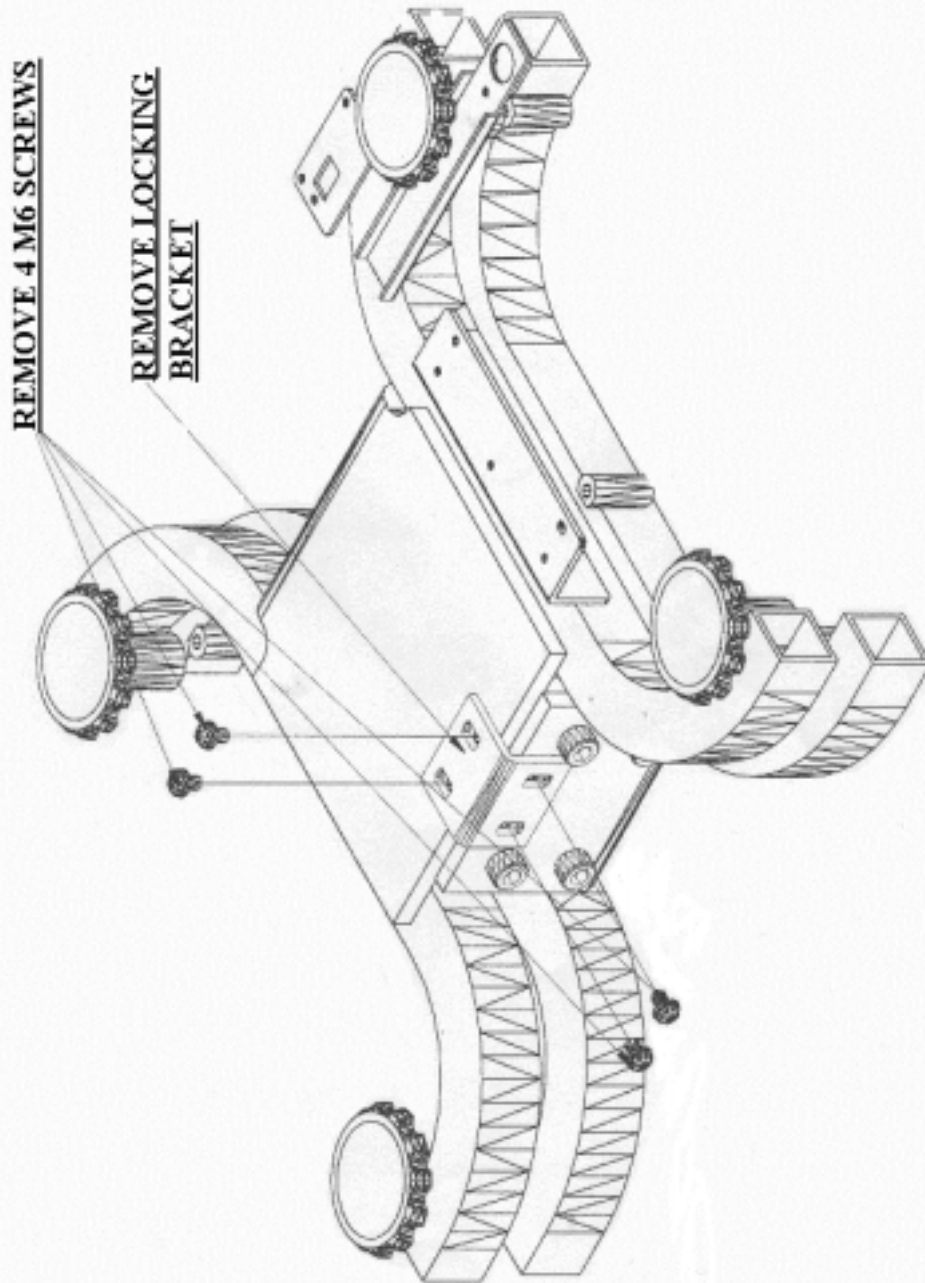
3.4. Unlocking Procedure

The unlocking procedure is included on the next page. The DS-520 should be properly locked whenever it is being transported. See next page for un-locking procedure.

NOTES:

- Remove 4 M6 screws and lock bracket as shown on page 6. Also check the overload stop. Ensure that nut is screwed tightly.
- Locking procedure should include tightening nut until it fully stops.

Unlocking Procedure (Continued)



4.0. DS-520 OPERATIONAL PROCEDURES

4.1. Power On/Off

1. Press **[ON/OFF]** key to turn on the scale.

The display will briefly show all segments, then blank for a second, then go into weighing mode.

2. Press **[ON/OFF]** key to turn off the scale.

4.2. Automatic Shut Off Timer Setting

1. Begin with the scale turned off.

2. Press and hold the **[ON/OFF]** key for 3 seconds. This sets the Timer for **3 minutes**.

3. Release the **[ON/OFF]** key when the display shows the number 3. *The display will then briefly show all segments, then blank for a second, then go into weighing mode.*

1. Begin with the scale turned off.

2. Press and hold the **[ON/OFF]** key for 6 seconds. This sets the Timer for **10 minutes**.

3. Release the **[ON/OFF]** key when the display shows the number 6. *The display will then briefly show all segments, then blank for a second, then go into weighing mode.*

1. Begin with the scale turned off.

2. Press and hold the **[ON/OFF]** key for 9 seconds. This sets the Timer for **no auto shut off**.

3. Release the **[ON/OFF]** key when the display shows the number 999. *The display will then briefly show all segments, then blank for a second, then go into weighing mode.*

4.3. Rezero

Example 1 Begin in the weighing mode with the scale showing 0.00 *Example based on 60 lb scale.*

1. Place 20 lb on the scale.
2. Press the **[REZERO]** key. *The display will show all segments briefly, then go to 0.00*

Example 2 Begin in the weighing mode with the scale showing 0.00 *Example based on 60 lb scale.*

1. Place 25 lb on the scale.
2. Press the **[REZERO]** key. *The display will show all segments briefly, then go to 25.00. 25lb exceeds the 40% limit of the rezero range.*

4.4. Tare

Example : Begin in the weighing mode with the scale showing 0.00 *Example based on 60 lb. scale.*

1. Place 20 lb on the scale.
2. Press the **[TARE]** key. *The display will go to 0.00*
3. Remove weight from scale. *The display will go to -20.00*
4. Press the **[TARE]** key. *To clear the tare*

5.0. MAINTENANCE MODE

5.1. Specification Entry

Example : Begin in the weighing mode with the scale showing 0.00

1. Press and hold [REZERO] key, while holding the [REZERO] key, press [TARE] [TARE] [ON/OFF] then release the [REZERO] key. *The display will show all 8's while holding the [REZERO] key, when the [REZERO] key is released the scale will be in the **Maintenance Mode**.*

2. Press the [TARE] key. *The display will show the software version.*

3. Press the [TARE] key. *The display will show S0 0 0 0 (spec 0 = 0 0 0)*

4. Press the [ON/OFF] key. *To change spec data (0 0 0 – 1 1 1)*

Ex: Press [ON/OFF] S0 0 0 1, Press [ON/OFF] S0 0 1 0, Press [ON/OFF] S0 0 1 1,

5. Press the [TARE] key. *To store spec data and advance to the next spec. S1 0 0 0*

6. Press the [REZERO] key. *To save specs to memory and return to the weighing mode.*

5.2. Specification Entry and Span Adjustment

Example : Begin in the weighing mode with the scale showing 0.00

1. Press and hold [REZERO] key, while holding the [REZERO] key, press [TARE] [TARE] [ON/OFF] **then release the [REZERO] key.** *The display will show all 8's while holding the [REZERO] key, when the [REZERO] key is released the scale will be in the **Maintenance Mode**. The display will show d5-671.*

2. Press the [TARE] key. *The display will show the software version.*

3. Press the [TARE] key. *The display will show S0 0 0 0 (spec 0 = 0 0 0)*

4. Press the [ON/OFF] key. *To change spec data (0 0 0 – 1 1 1)*

Ex: Press [ON/OFF] S0 0 0 1, Press [ON/OFF] S0 0 1 0, Press [ON/OFF] S0 0 1 1,

5. Press the **[TARE]** key. *To store spec data and advance to the next spec. S1 0 0 0*
6. Press the **[TARE]** key. *To store spec data and advance to the next spec. S2 0 0 0*
7. Press the **[TARE]** key. *To store spec data and advance to the next spec. S3 0 0 0*
8. Press the **[TARE]** key. *The display will show CAL 00*
9. No Weight Should Be On Platter. Press the **[TARE]** key. *The display will show - - - - - while the scale calibrates the zero point. When zero is calibrated the display will show CAL SP*
10. Place Capacity Weight On Platter. Press the **[TARE]** key. *The display will show - - - - - while the scale calibrates the span. When span is calibrated the scale will return to the weighing mode. 60.00*

NOTE: To exit maintenance mode, Press the **[REZERO]** key at any step except when - - - - - are displayed.

5.3. Internal Count Display :

Example : Begin in the weighing mode with the scale showing 0.00

1. Press and hold **[REZERO]** key, while holding the **[REZERO]** key, press **[TARE]** **[TARE]** **[ON/OFF]** then release the **[REZERO]** key. *The display will show all 8's while holding the [REZERO] key, when the [REZERO] key is released the scale will be in the **Maintenance Mode**. The display will show d5-671.*
2. Press the **[ON/OFF]** key. *To display the Internal (Span) Count*
3. Press the **[ON/OFF]** key. *To display the Internal (Zero) Count*
4. Press the **[ON/OFF]** key. *To display the Internal(Span) Count*
5. Press the **[TARE]** key. *To store spec data and advance to the next spec. S1 0 0 0*

5.4. Specification List

Spec no.	Bit 2	Bit 1	Bit 0
S0	Decimal Point Position 0 0 0 = no decimal point 1 0 0 = 5 th digit (00.0000) 0 0 1 = 2 nd digit (00000.0) 1 0 1 = 6 th digit (0.00000) 0 1 0 = 3 rd digit (0000.00) 1 1 0 – 1 1 1 = not used 0 1 1 = 4 th digit (000.000)		
S1	Decimal Point Type 0 = period 1 = comma	ZERO Lamp “ON” 0 = gross 0 1 = net 0	Zero Tracking when Tare 0 = no , 1 = yes
S2	Minimum Display 0 0 0 = 1 0 1 0 = 5 1 0 0 = 20 0 0 1 = 2 0 1 1 = 10 101-111 not used		
S3	Display Resolution 0 0 = 1/1000 (multi-Interval) 0 1 = 1/2000 (single-interval) 1 0 = 1/3000 (single-interval) 1 1 = not used		Multi-Interval Setting 0 = net multi- interval 1 = gross multi-interval
S4	Not Used		
S5	Not Used		
S6			Auto Tare Clear V 1.21 0=yes, 1=no

5.5. Error Message List

The following message will appear when an invalid operation is performed

Message	Remark	Appropriate Operation
OF	When displayed weight on scale exceeds capacity by +9d, or weight is on platter when power up	Remove weight from scale
UF	When displayed minus weight >= 9d	Rezero scale, turn off and on
888888	A/D checking error or scale not stable on power up.	Place scale on firm flat surface and level it.
ERROR	Calibration is not correct, or A/D checking error on power up	Repeat calibration procedure
0.00 ▼	Low battery indication when input voltage is low.	Change batteries or check power supply
▼	Weight Display blanks when voltage is below min. level. Low battery indication goes off as the battery is drained.	Change batteries or check power supply

5.6. Maintenance, Calibration, Test Procedure & Service

This section contains information and instructions concerning maintenance of the DS-520 Weighing Scale.

Preventive maintenance consists of periodically cleaning the external surfaces of the instrument and should be performed as often as operating conditions warrant.

The calibration procedure is designed to be an aid in maintaining the scale accuracy within specifications. The calibration procedure may also serve as a performance test procedure.

CAUTION: DO NOT ATTEMPT ANY SERVICE WHILE THE INSTRUMENT IS CONNECTED TO THE POWER SOURCE.

5.6.1. Maintenance Procedures

5.6.1.1. EXTERIOR MAINTENANCE

The exterior surfaces of the counting scale can be easily cleaned using soap and water. For grease or other difficult spots, a chlorothane or naptha based cleaner may be used.

5.6.1.2. Internal Maintenance

Internal maintenance is not normally required and if it is, should not be attempted except by a qualified, authorized service technician.

5.6.2. Calibration

The following procedure should be followed periodically (every six to twelve months is suggested) to determine that the scale is functioning in all modes.

A. Electrical

Follow section 4.0 through all its steps

B. Accuracy

Weighing: The scale weighing accuracy can be determined by applying various known weights to the platform. Because of the scale's very high accuracy, only weights that are certifiably more accurate than the scale's specifications should be used in testing for accuracy. (NIST class "F" or higher)

Since the scale owner does not normally have such certifiable weights available, it is suggested that the customer call their authorized DIGI dealer.

5.6.3. Service & Repair

No service or repair should be attempted except by qualified personnel, and not until it has been positively determined that the weighing scale requires such service. All service should be done in a clean, dry, dust-proof area.

DS-520 Limited Warranty

Rice Lake Weighing Systems (RLWS) warrants that all RLWS equipment and systems properly installed by a Distributor or Original Equipment Manufacturer (OEM) will operate per written specifications as confirmed by the Distributor/OEM and accepted by RLWS. All systems and components are warranted against defects in materials and workmanship for two (2) years.

RLWS warrants that the equipment sold hereunder will conform to the current written specifications authorized by RLWS. RLWS warrants the equipment against faulty workmanship and defective materials. If any equipment fails to conform to these warranties, RLWS will, at its option, repair or replace such goods returned within the warranty period subject to the following conditions:

- Upon discovery by Buyer of such non-conformity, RLWS will be given prompt written notice with a detailed explanation of the alleged deficiencies.
- Individual electronic components returned to RLWS for warranty purposes must be packaged to prevent electrostatic discharge (ESD) damage in shipment. Packaging requirements are listed in a publication, "Protecting Your Components From Static Damage in Shipment," available from RLWS Equipment Return Department.
- Examination of such equipment by RLWS confirms that the non-conformity actually exists, and was not caused by accident, misuse, neglect, alteration, improper installation, improper repair or improper testing; RLWS shall be the sole judge of all alleged non-conformities.
- Such equipment has not been modified, altered, or changed by any person other than RLWS or its duly authorized repair agents.
- RLWS will have a reasonable time to repair or replace the defective equipment. Buyer is responsible for shipping charges both ways.
- In no event will RLWS be responsible for travel time or on-location repairs, including assembly or disassembly of equipment, nor will RLWS be liable for the cost of any repairs made by others.

THESE WARRANTIES EXCLUDE ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING WITHOUT LIMITATION WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. NEITHER RLWS NOR DISTRIBUTOR WILL, IN ANY EVENT, BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.

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No terms, conditions, understanding, or agreements purporting to modify the terms of this warranty shall have any legal effect unless made in writing and signed by a corporate officer of RLWS and the Buyer.

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