John Deere
JD1790 Deere-Bauer Series CCS
Refuge Option
Planter Scale

Instructions
And
Repair Parts
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INTRODUCTION

Congratulations on the purchase of your new Digi-Star Planter Scale for John Deere 1790 DB series planter.

The scale system is specially designed to weigh the central commodity seed hopper. The scale will record and monitor seed weight going into or out of the CCS hopper.

This scale system is covered by the following US patents: 6732667, 7059258 and 7273017. The single-use license is included with this document (see page 10).

This SAFETY ALERT SYMBOL indicates important safety messages in the manual. When you see this symbol, be alert to the possibility of PERSONAL INJURY and carefully read the message that follows.

WARNING NEVER OPERATE WITHOUT ALL COVERS, SHIELDS AND GUARDS IN PLACE. KEEP HANDS, FEET AND CLOTHING AWAY FROM MOVING PARTS. FAILURE TO HEED MAY RESULT IN SERIOUS PERSONAL INJURY OR DEATH.

Some covers and guards have been removed for illustrative/photographic purposes only in this manual.

For information on ordering repair parts, refer to Parts Section in this book.

This supersedes all previous published instructions.

Important!

Charging Battery and Welding

Disconnect all cables from the weighing indicator before charging the battery or welding on the machine. If cables are left connected, the weighing indicator and connected load cells could be damaged.

Important: Do not weld near indicator, load cells or cables; remove from area to be welded. Place ground close to area to be welded to prevent current from passing through electronic parts.
SCALE BRACKET AND LOAD CELL MOUNTING INSTALLATION

Before beginning load cell installation, inspect your planter and determine if your scale installation will require welding. Depending on what DB-Series version planter frame you have, you will either:

Does your scale have:

1. Extra welded front top plate

Then scale brackets are bolt-on.

or

Does your scale have:

1. No top plate

Then scale brackets must be welded

2. No threaded holes
Rear Leg Assembly

1. Lift and support rear frame of tank. Loosen existing support hardware. **IMPORTANT**: The lifting chains, bucket attachments, loader/skid steer or winch must be capable of lifting and controlling 1000-1500 lbs.

2. Attach rear brackets and load cell to rear hopper frame. Keep 5/8” x 8-1/2” bolts and nuts loose. **IMPORTANT**: Use 400525 cell – 2.125 DB – 11 ft. cable for rear support. Also, make sure arrow on end of load cell is pointing down.

3. Lower hopper frame and align rear bracket with M16 threaded holes in rear frame plate. (Tighten M16 bolts and all rear support hardware.)

4. If threaded holes are not present, weld rear support to rear frame plate.

**IMPORTANT**: When welding on planter, ground close to the weld. Do not run electrical current through the load cell.
Front Leg Assembly

1. Weld top base and vertical plate to planter frame if required.

2. Remove the two front leg horizontal 5/8” bolts to the front leg. Lift the front leg up 3/4". Assemble the Front Leg Assembly. IMPORTANT: The load cell arrow located on the end of the FRONT LOAD CELL needs to be pointed DOWN.

3. Use the 3/4” x 4.0” bolt to secure the load cell to the base bracket. Pin the load cell to the top bracket with 3/4” x 4.0 clevis pin.

4. Install the existing Front Leg Assembly to the front leg, using the 5/8” x 3.5” bolt and 5/8” top lock flange nut. Use the 1/2” x 2-1/4” bolts provided to hold the base bracket and shim plate to the planter frame. Tighten the base plate to the planter frame.
5. **IMPORTANT:** Make sure the front leg is not rubbing on the two mounting plates on the planter frame. The junction box gets bolted to the two holes on the end of the base bracket.
SCALE BRACKET AND LOAD CELL MOUNTING INSTALLATION FOR REFUGE HOPPER

A Refuge Option on a planter is a planter fitted with a third hopper located on the front of the planter. An extra load cell and brackets are required to weigh the extra third hopper.

1. Remove the refuge hopper leg and bolt in the new scale leg.
2. Use the 3/4" X 5" bolts to hold weigh bar in place.
3. Bolt the top bracket to the frame with the 18" x 9-1/2" U-Bolt.

Note: It is important that the load cell arrow, located on the end of the load cell, must be pointing upward.

The indicator can also be mounted to the railing in between the hopper. Then it can be turned to face backward while filling the hoppers, and turned forward for observation from the cab while planting.
JUNCTION BOX MOUNTING

The junction box is water resistant, not water-proof. It should be mounted to avoid submersion during wet weather and to avoid physical abuse. The junction box can be mounted on the front or rear of the drill, planter or seeder. All load cell cables must reach the J-Box. Install by removing the double sided tape backing and apply to cleaned surface.

Connect Load Cell and J-Box Cable
1. Route front and rear load cell cables to J-box location. Make sure they are not bound or pinched. Cable tie (customer provided) load cell cables in place.
2. Insert load cell and J-box cables through each of the water-tight strain-reliefs.
3. Remove each terminal block from the J-box.
4. Connect wires of the same color to the same terminal block as shown above. See instructions below.
5. Install terminal block into the J-box as shown (location not important).
6. Tighten nuts on the water-tight strain-reliefs.
7. Assure that gasket is properly installed in the cover.
8. Attach cover using 4 screws (provided).

Installing wires into Terminal Block
1. Open levers 90° to locked position.
2. Insert individual wires into terminal.
3. Close lever.
4. Tug wire to assure solid connection.

Note: Wire strip length is 7/16" (11mm).

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>406232</td>
<td>J-Box Lever Nut 4Pt (Planter)</td>
</tr>
<tr>
<td>141837</td>
<td>Cable - 30Ft J-Box</td>
</tr>
<tr>
<td>406074</td>
<td>Cable - 45Ft J-Box</td>
</tr>
<tr>
<td>403335</td>
<td>Cable - Power 17Ft 2-Wire</td>
</tr>
<tr>
<td>406073</td>
<td>Cable - Power 36Ft 2-Wire</td>
</tr>
<tr>
<td>406072</td>
<td>Cable - Power 6Ft 2-Wire</td>
</tr>
<tr>
<td>824316</td>
<td>Cable - 15Ft J-Box</td>
</tr>
<tr>
<td>145096</td>
<td>Cable - 70Ft J-Box</td>
</tr>
<tr>
<td>406276</td>
<td>Cable - Power 65Ft 2-Wire</td>
</tr>
</tbody>
</table>
INDICATOR MOUNTING

The scale indicator can be mounted in the tractor cab or on the drill, planter or seeder with swivel mounting pack (406081). Two cables must be connected to the indicator bottom panel, J-Box and power cables. Refer to Indicator Manual D3831-US for details of indicator mounting options and connection of power cord.

1. Bolt the readout in the cab, or mount the swivel bracket on the drill, planter or seeder.
2. Install power cord to a 12-volt negative ground battery.
3. Route J-box cable to indicator and install to indicator bottom panel.
4. Program indicator with set-up #145035 and calibration #24200 for the John Deere 1790 DB Series, and set-up #145035 and calibration #32890 for the John Deere 1790 DB Series with Refuge Option (see Indicator Manual).

Power Connection:
The power cable should be connected directly to a vehicle battery or regulated power supply. The scale end of the power cable is attached to the J901 connector located on the bottom panel of the indicator.

Connect the RED wire from the power cable to +12 VDC and the BLACK wire to GROUND. The indicator is fused internally at 4 amps.

<table>
<thead>
<tr>
<th>Wire color</th>
<th>Wire Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red</td>
<td>Battery (+12 VDC)</td>
</tr>
<tr>
<td>Black</td>
<td>GROUND</td>
</tr>
</tbody>
</table>

Load Cell Connection:
The indicator is designed to operate with strain gage load cells. The indicator will normally be supplied with a “J-BOX” cable going between the scale and the load cell junction box. Extension kits are available from your dealer in various lengths.

<table>
<thead>
<tr>
<th>Load Cell Wire</th>
<th>Digi-Star</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>RED</td>
<td>+EX</td>
</tr>
<tr>
<td>2</td>
<td>GREEN</td>
<td>-SIG</td>
</tr>
<tr>
<td>3</td>
<td>WHITE</td>
<td>+SIG</td>
</tr>
<tr>
<td>4</td>
<td>BLACK</td>
<td>-EX</td>
</tr>
<tr>
<td>5</td>
<td>CLEAR</td>
<td>SHIELD</td>
</tr>
</tbody>
</table>
TROUBLE SHOOTING

How to Check the Drill Scale after Installation

For the first test, lift the drill, planter or seeder all the way up, to a level area. Put 200-250 pounds of weight on the right side, then compare it to the left. Both sides should be within four to six pounds of each other.

- If the weight is not within the four to six pound range, inspect the scale system for loose or misalign mounts.

The second test is to lift the drill, planter or seeder to a level area and zero the scale. Lift the drill/planter/seeder up and down two to three times, checking to see if the scale zeros out. Each time the scale is in the up position, it should be within four to six pounds.

If further assistance is necessary, please call Digi-Star, LLC at 920-563-9700.

***The example we are using is 2000 lbs of seed evenly filled in both hoppers. There is 25 lbs of seed left from the last fill.

Push the “Start” button. The screen will show zero, and the arrow is now pointing to “Net” on the screen. This is a temporary zero point to start loading the planter with seed. You will now fill 1000 lbs of seed into the left hopper.

Push the “Stop” button, the readout now reads 1025 lbs of seed inventory.

Push the “Start” button again. The screen will say zero again. Load another 1000 lbs of seed into the right side.

Now push “Stop” and the screen will read 2025 lbs of seed. The numbers will work lower as the seed is planted.
## REPAIR PARTS

### 406131 Kit – Scale JD1790 DB Series

### 406132 Kit – Scale JD1790 DB Series, Indicator in Tractor Cab

<table>
<thead>
<tr>
<th>KEY</th>
<th>QTY.</th>
<th>PART NO.</th>
<th>DESCRIPTION</th>
<th>KEY</th>
<th>QTY.</th>
<th>PART NO.</th>
<th>DESCRIPTION</th>
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<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>406129</td>
<td>Scr – 5/8-11 x 3.5 HHCS ZP Grd 5</td>
<td>12</td>
<td>2</td>
<td>400525</td>
<td>Cell – 2.125 DB, 11’ Cable</td>
</tr>
<tr>
<td>2</td>
<td>6</td>
<td>406070</td>
<td>Nut – 5/8-11 Top-Lock Flange ZP</td>
<td>13</td>
<td>1</td>
<td>400061</td>
<td>Cell – 2-1/8 DB Pin H – 4140, 21’ Cable</td>
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<tr>
<td>3</td>
<td>1</td>
<td>406047</td>
<td>Weld – Mid Top Brkt (JD1790-03)</td>
<td>14</td>
<td>2</td>
<td>406037</td>
<td>Weld – Top Leg Brkt (JDB1790-01)</td>
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<tr>
<td>4</td>
<td>3</td>
<td>405988</td>
<td>Nut – 3/4-10 Top-Lock Flange ZP</td>
<td>15</td>
<td>3</td>
<td>405897</td>
<td>Pin – Cotter 5/32 x 1.0 ZP</td>
</tr>
<tr>
<td>5</td>
<td>3</td>
<td>405895</td>
<td>Scr – 3/4-10 x 4.0 HHCS ZP Grd 5</td>
<td>16</td>
<td>3</td>
<td>406148</td>
<td>Pin – Clevis 3/4 x 4.0 ZP</td>
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<tr>
<td>6</td>
<td>1</td>
<td>406046</td>
<td>Weld – Mid Bottom Brkt (JD1790-04)</td>
<td>17</td>
<td>4</td>
<td>405854</td>
<td>Scr – 1/2-13 x 2-1/4 HHCS ZP Grd 5</td>
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<tr>
<td>7</td>
<td>4</td>
<td>406317</td>
<td>Scr – M16-2.0 x 60MM HHCS 8.8 ZP</td>
<td>18</td>
<td>4</td>
<td>406053</td>
<td>Wash – 1/2 Flat Wide ZP</td>
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<tr>
<td>8</td>
<td>4</td>
<td>404969</td>
<td>Wash – M16 Lock ZP</td>
<td>19</td>
<td>4</td>
<td>405855</td>
<td>Wash – 1/2 Lock ZP</td>
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<tr>
<td>9</td>
<td>2</td>
<td>406235</td>
<td>Weld – Rear Brkt (JDB1790)</td>
<td>20</td>
<td>4</td>
<td>405856</td>
<td>Nut – 1/2-13 Hex ZP</td>
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<tr>
<td>10</td>
<td>2</td>
<td>406036</td>
<td>Plate – Leg Brkt (JDB1790-01)</td>
<td>21</td>
<td>1</td>
<td>406042</td>
<td>Plate – Weld In 6” (JDB1790-02)</td>
</tr>
<tr>
<td>11</td>
<td>4</td>
<td>405863</td>
<td>Scr – 5/8-11 x 8-1/2 HHCS ZP Grd 5</td>
<td>22</td>
<td>1</td>
<td>406041</td>
<td>Plate – Weld In (JDB1790-02)</td>
</tr>
</tbody>
</table>
## INDICATOR SWIVEL MOUNT

<table>
<thead>
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<th>KEY</th>
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<th>DESCRIPTION</th>
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<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>403980</td>
<td>Brkt – Robo Mtg</td>
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<tr>
<td>2</td>
<td>2</td>
<td>406086</td>
<td>Brkt – Swivel Cast (JD H161618)</td>
</tr>
<tr>
<td>3</td>
<td>2</td>
<td>406087</td>
<td>Gasket – 1.813OD x 1.218 ID x 0.313 WID</td>
</tr>
<tr>
<td>4</td>
<td>2</td>
<td>400036</td>
<td>Scr – 1/4-20 x 3/4 HHCS ZP</td>
</tr>
<tr>
<td>5</td>
<td>2</td>
<td>400038</td>
<td>Washer – Lock 1/4 ZP</td>
</tr>
<tr>
<td>6</td>
<td>2</td>
<td>400035</td>
<td>Nut – 1/4-20 ZP</td>
</tr>
<tr>
<td>7</td>
<td>2</td>
<td>405989</td>
<td>Scr – 3/8-16 x 3.0 HHCS ZP Grd 5</td>
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<tr>
<td>8</td>
<td>2</td>
<td>404292</td>
<td>Nut – 3/8-16 Nyloc ZP</td>
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<tr>
<td>9</td>
<td>2</td>
<td>405612</td>
<td>GT400 Indicator (Not included in kit 406081)</td>
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### PARTS LIST 406385

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<thead>
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<th>KEY</th>
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<th>PART NO.</th>
<th>DESCRIPTION</th>
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<tr>
<td>1</td>
<td>1</td>
<td>404230</td>
<td>Ram Suction Cup with Twist Lock</td>
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<tr>
<td>2</td>
<td>2</td>
<td>403180</td>
<td>Assembly – 1” Ram Mount</td>
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<tr>
<td>3</td>
<td>2</td>
<td>403779</td>
<td>Scr - #10 x 5/8 PHSTS 48-2 Blk ZP</td>
</tr>
</tbody>
</table>
LICENSE AGREEMENT

IMPORTANT NOTICE: Acceptance and use of the enclosed electronic scale products (hereinafter referred to as “Purchased Product”) constitutes your agreement to the following terms and conditions. Please carefully read the following terms and conditions before using or reselling the Purchased Product.

1. **Limited License**: Digi-Star, LLC, a Wisconsin limited liability company ("Owner") is the owner of the following U.S. Patents related to grain drills: 6,732,667, 7,059,258, 7,273,017, 7,357,087, 7,448,335, 7,523,710 and any other patents which result from continuation applications thereof ("Patents"). Owner hereby grants to the customer ("Customer") a non-exclusive, non-transferable, revocable, limited license to use the technology described in the Patents to use the Purchased Product to assemble a seed planter product covered by the Patents ("Licensed Product"), and to sell and offer for sale one (1) unit of the Licensed Product in accordance with the terms and conditions set forth herein. Alternatively, Customer may resell the Purchased Product to another entity for the purpose of that entity assembling one (1) unit of a Licensed Product under a permitted sublicense from the Customer with the same terms as this Agreement. If Customer would like to assemble, use, sell or offer for sale more than one (1) Licensed Product, or resell more than one (1) Purchased Product, Customer understands and agrees that it must purchase another Purchased Product from Owner or acquire a separate license by requesting and purchasing another unit of the same SKU number that resulted in this purchase.

2. **Acceptance of Terms and Conditions**: Customer warrants that it has the authority to enter into this binding agreement. If Customer does not accept the terms and conditions, Customer shall not use the Purchased Product. Customer understands and agrees that if it uses the Purchased Product as permitted herein, it will be deemed to have accepted these terms and conditions and they shall become a binding agreement.

3. **Limitations on Use**: Customer agrees that it will use the Licensed Product only as expressly authorized in this Agreement, and that any use not expressly authorized in this Agreement is prohibited. Customer agrees that it will not: (i) lend, rent, lease, assign, sublicense, distribute or otherwise transfer its rights under this Agreement to a third party, other than to resell the Purchased Product to another entity for the purpose of that entity assembling one unit of a Licensed Product; (ii) copy or reproduce the Licensed Product; or (iii) grant any sublicenses other than to an end user of the Licensed Product, or to another entity for the purpose of that entity assembling one unit of a Licensed Product. Customer agrees to use reasonable efforts to prevent any unauthorized use or copying of the Licensed Product and will notify Owner immediately upon learning of any such unauthorized use or copying. Customer’s obligations under this section shall survive any termination of this Agreement or the license granted hereunder. Any unauthorized use of the Licensed Product will result in, among other things, the immediate termination of this license.

4. **Ownership of Proprietary Rights**: Customer acknowledges that the Licensed Product is covered intellectual and/or proprietary rights, and that all such intellectual and proprietary rights are owned by Owner. Customer hereby acknowledges that it has no rights in the foregoing except as expressly granted herein.

5. **NO WARRANTY**: Customer agrees to fully test and evaluate the Purchased Product and Customer acknowledges and agrees that Owner will not assume any product liability or any other liability for the Purchased Product or the Licensed Product. The Purchased Product is furnished to Customer “AS IS.” Except as otherwise provided by separate documentation, OWNER MAKES NO WARRANTIES, EITHER EXPRESS OR IMPLIED, WITH RESPECT TO THE PURCHASED PRODUCT. Customer agrees that Owner shall have no liability resulting from Customer’s use of the Purchased Product for any indirect damages including consequential, incidental or special damages for loss of profit, good will or otherwise. Customer shall indemnify and hold Owner harmless from any and all losses, expenses, damages, costs or expenses of any kind, including but not limited to reasonable attorneys’ fees, incurred by Owner resulting from Customer’s use of the Purchased Product. NO ORAL OR WRITTEN STATEMENTS MADE BY OWNER OR ITS EMPLOYEES INCLUDING BUT NOT LIMITED TO STATEMENTS REGARDING CAPACITY, SUITABILITY FOR USE, OR PERFORMANCE OF THE PURCHASED PRODUCT SHALL BE DEEMED A WARRANTY OR REPRESENTATION BY OWNER FOR ANY PURPOSE NOR GIVE RISE TO ANY LIABILITY OR OBLIGATION OF OWNER.

6. **Remedies for Violations**: Owner reserves the right to seek all remedies available at law and in equity for violations of this Agreement, including but not limited to the right to recover the Licensed Product.

7. **Fees**: In consideration for the rights granted under this Agreement, Customer has paid a license fee that was included in the amount invoiced to the Customer for the sale of the Purchased Product.

8. **Entire Agreement**: Except as expressly stated herein to the contrary, this Agreement constitutes the entire agreement between the parties regarding the subject matter hereof, and no verbal or written prior statements or representations of any sort made by any party shall be effective or valid for any purpose whatsoever. This Agreement may be amended only upon the mutual consent of all parties in writing.

9. **Severability**: If any provision of this Agreement shall be held to be invalid, illegal or unenforceable, the validity, legality and enforceability of the remaining provisions shall not in any way be affected or impaired thereby. The failure of any party to enforce any provision of this Agreement shall not be considered a waiver thereof, nor shall such failure prevent the future enforcement of any such provision.

10. **Governing Law**: This Agreement and the relationship between the parties shall be governed in all respects by the laws of the State of Wisconsin and the United States of America. The parties consent to the jurisdiction and venue of the Wisconsin and United States courts located in Wisconsin for resolution of any dispute under to this Agreement.

Use or sale of the Licensed Product or of Purchased Product shall bind Customer to all terms and conditions herein without the necessity of signatures on this Agreement.