



Universal Grain Drill Scale System

**Instructions
And
Repair Parts**



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INTRODUCTION

Congratulations on the purchase of your new Digi-Star Grain Drill Scale System. This scale system is specifically designed to weigh the seed hopper on a Grain Drill or other seeding hoppers. The scale kit can be used to record and monitor seed weight going into or out of the seed 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.

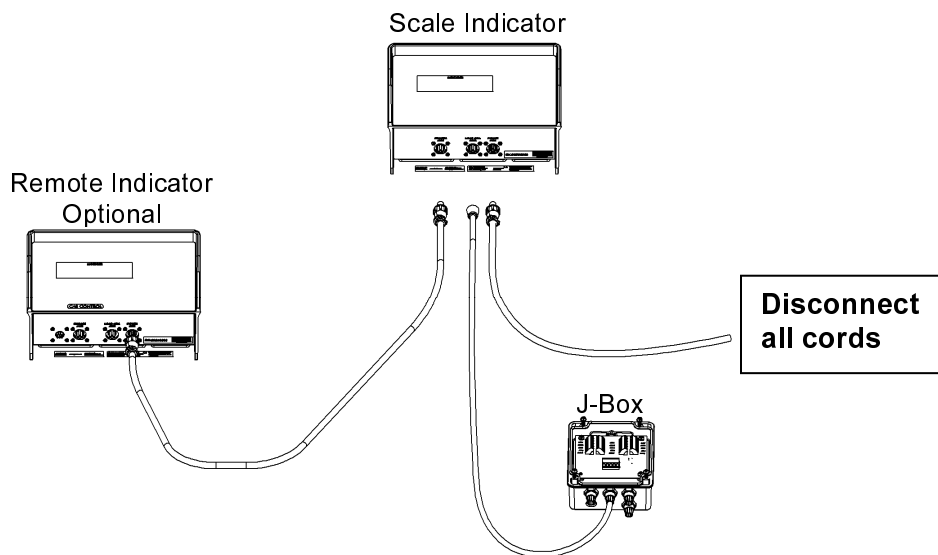
This supersedes all previous published instructions.

! **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

The Universal Scale Kit consists of four load cells, J-Box and scale indicator. The universal scale kit is designed to mount to the outside of a box drill hopper or other seeding hoppers. Brackets may be mounted facing in or out, together or opposing. The front to back orientation of the load cells is reversible and the cells may be oriented in the same way or different ways, depending on the specific needs of your application, see Figures 1 and 2. Drilling new mounting holes will be required.

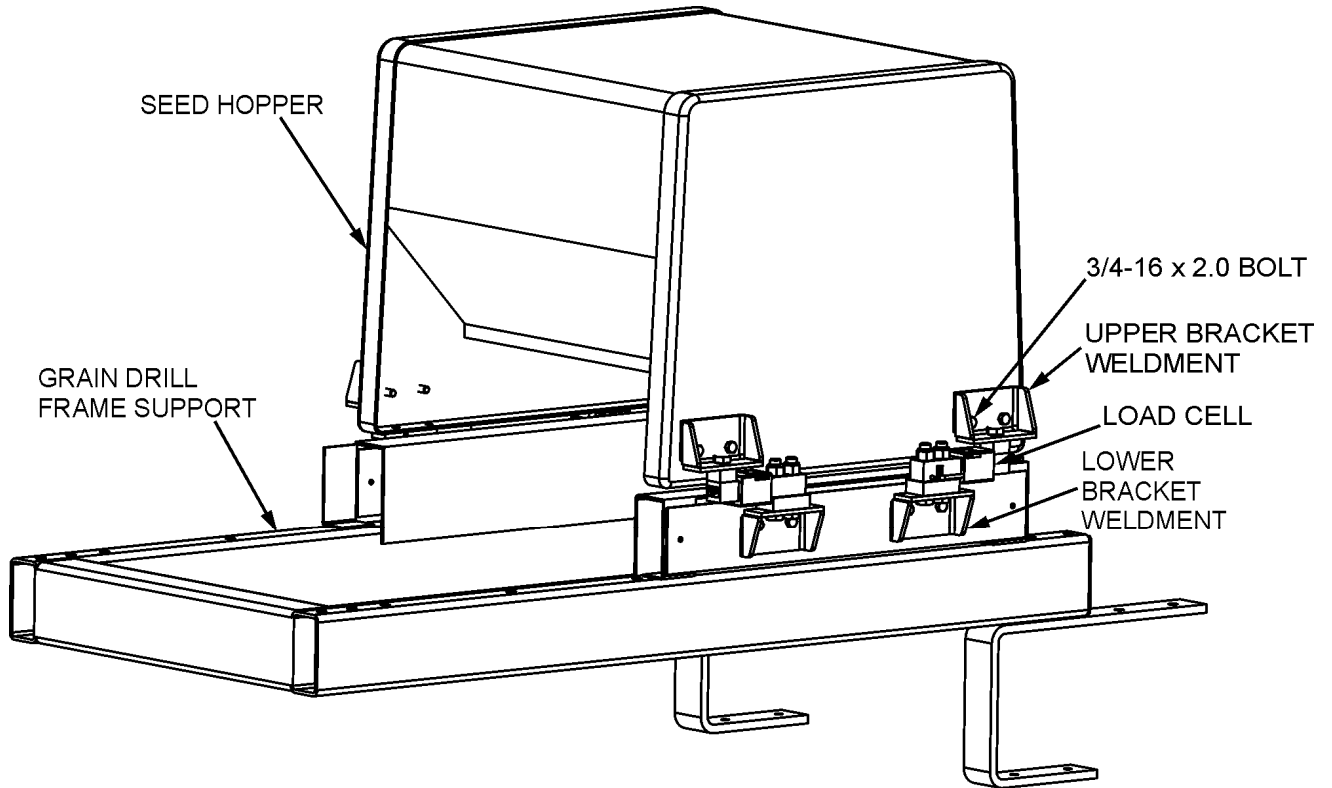


FIGURE 1 LOAD CELL MOUNTING, FRONT TO BACK

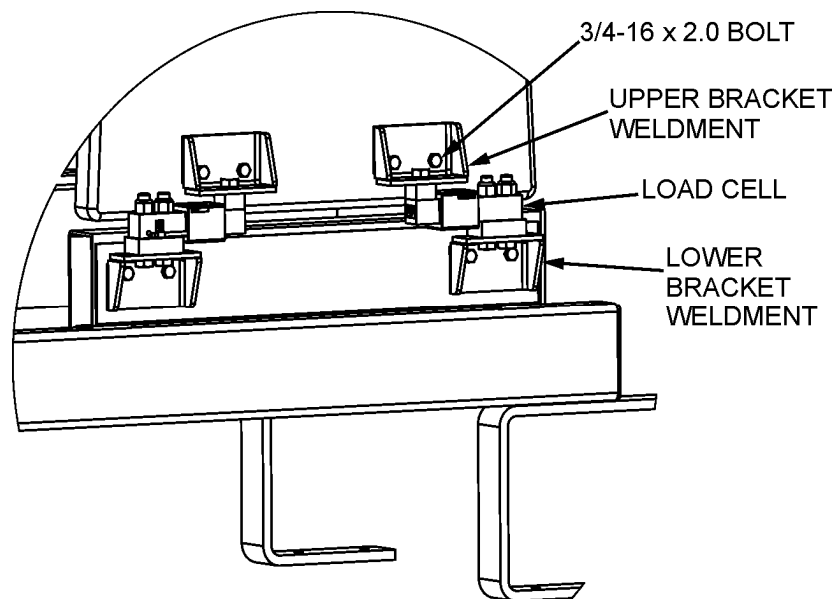



FIGURE 2 LOAD CELL MOUNTED, REVERSED

1. Assemble upper and lower bracket weldments to the four 1.5 SQ DB load cells. Refer to Detail A for the proper technique for tightening the 3/4-16 x 2.0 bolt to the upper weldment.
2. Position the assembled Load Cell/Brackets on the four hopper corners. Mark and drill .531Ø holes for mounting the upper bracket to the hopper. Tighten the upper weldment to the hopper with 1/2 bolt and 1/2 serrated flange mounting hardware.
3. Loosen the original bolts holding the hopper to the drill frame. Do not remove.
4. Remove the hopper mounting bolts on the left side and lift the hopper approximately 3/4" - 1".

NOTE: Typically the hopper is raised 3/4"-1" to separate the hopper from the main frame.

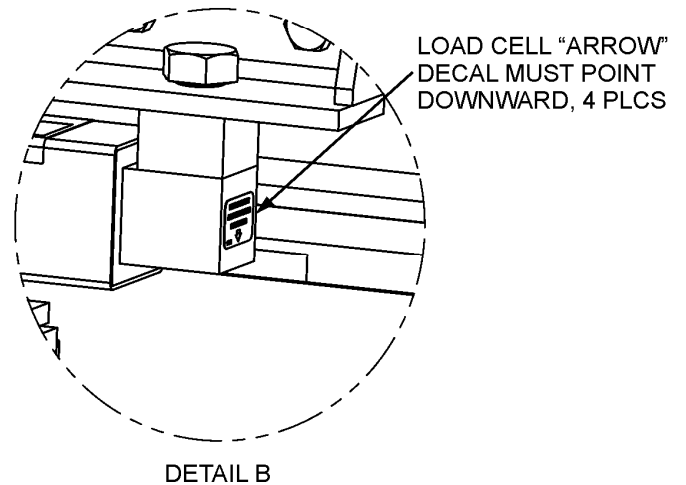
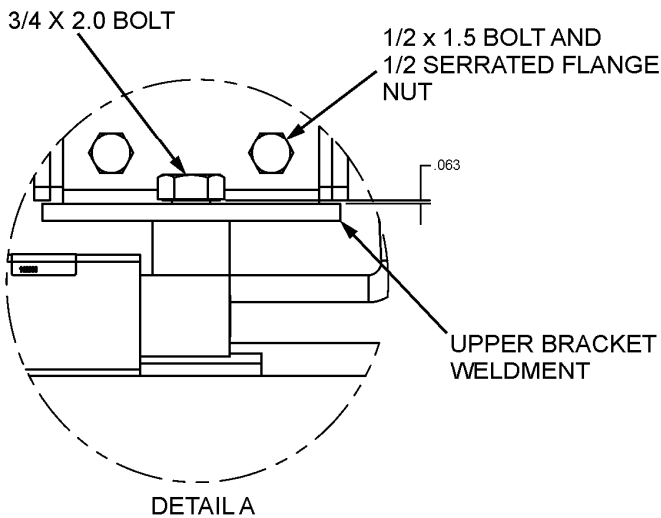
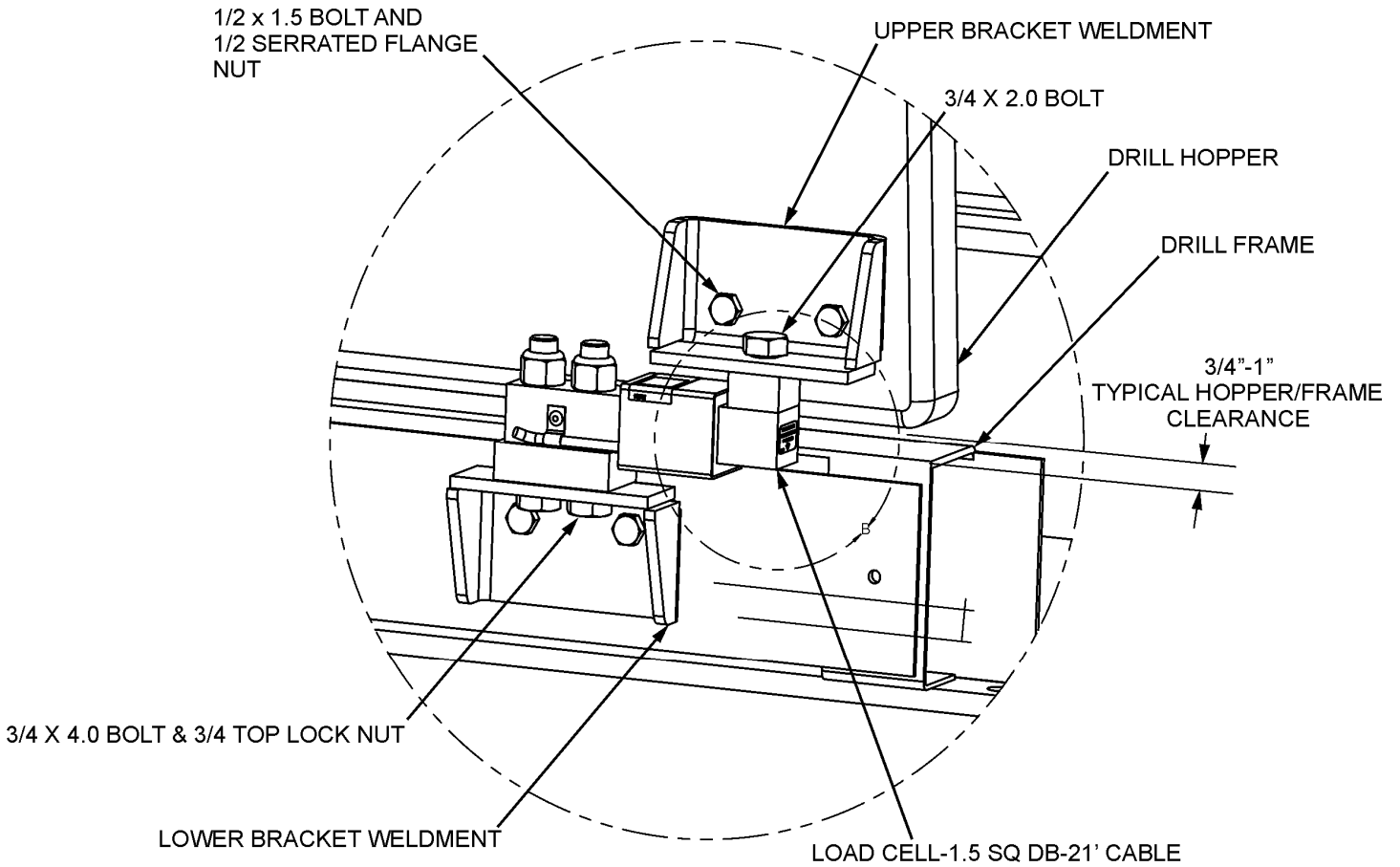
It is recommended the hopper be supported by two methods when installing the load cells and brackets. In addition to lifting the hopper with a chain or nylon strap, the hopper should be supported in the middle with a hydraulic jack or stands.

 **Important:** The lifting chains, bucket attachments, loader/skid steer or winch must be capable of lifting and controlling 1000 lbs.

5. Mark and drill .531Ø holes for the left side bottom brackets. Install bolts to secure to main frame, two per side.
6. Repeat for right hopper supports.

After hopper is supported, inspect the hopper drive chain or clutch to determine if additional chain links may be required.

Universal Grain Drill Scale Kit

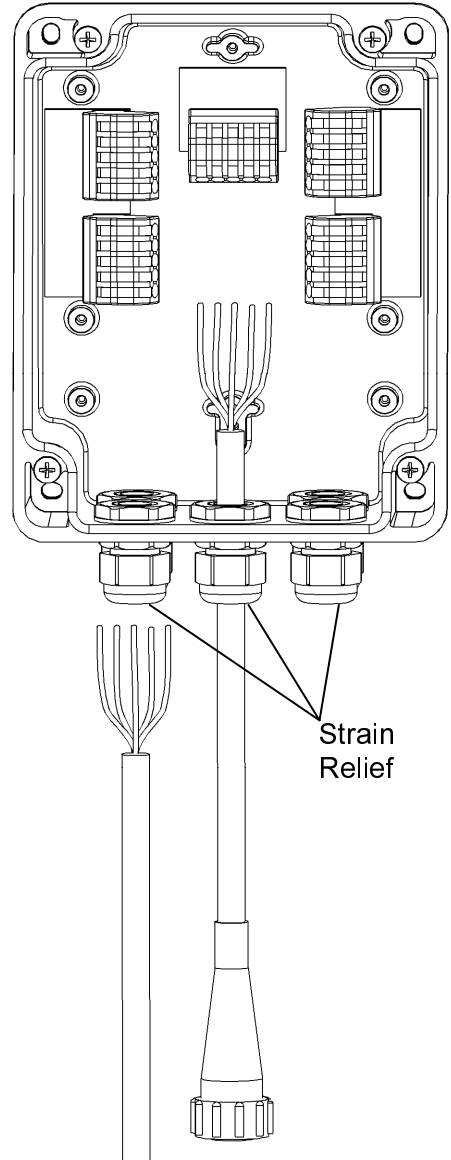


JUNCTION BOX MOUNTING

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. 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.

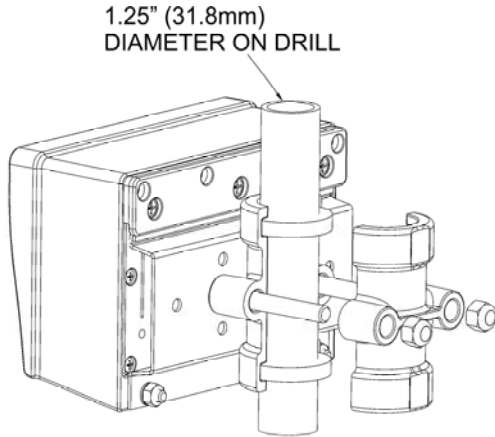
Note: Wire strip length is 7/16" (11mm).

406232	J-Box Lever Nut 4Pt (Planter)
141837	Cable - 30Ft J-Box
406074	Cable - 45Ft J-Box
403335	Cable - Power 17Ft 2-Wire
406073	Cable - Power 36Ft 2-Wire
406072	Cable - Power 6Ft 2-Wire
824316	Cable - 15Ft-J-Box
145096	Cable - 70Ft-J-Box
406276	Cable - Power 65Ft 2-Wire

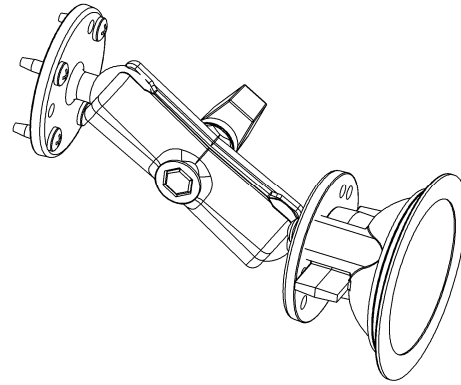
INDICATOR MOUNTING

The scale indicator can be mounted in the tractor cab or on the drill 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.

INDICATOR MOUNTINGS



DRILL MOUNTING



TRACTOR CAB MOUNTING

1. Bolt the readout in the cab with the bracket, or mount the bracket in the front of the lift cylinder.
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 #145015** and **calibration #15000** (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.

Power Cable Connections:

Wire color	Wire Function
Red	Battery (+12 VDC)
Black	GROUND

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.

Load Cell Wire	Digi-Star	Function
1	RED	+EX
2	GREEN	-SIG
3	WHITE	+SIG
4	BLACK	-EX
5	CLEAR	SHIELD

TROUBLE SHOOTING

How to Check the Drill Scale After Installation

For the first test, lift the drill 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.

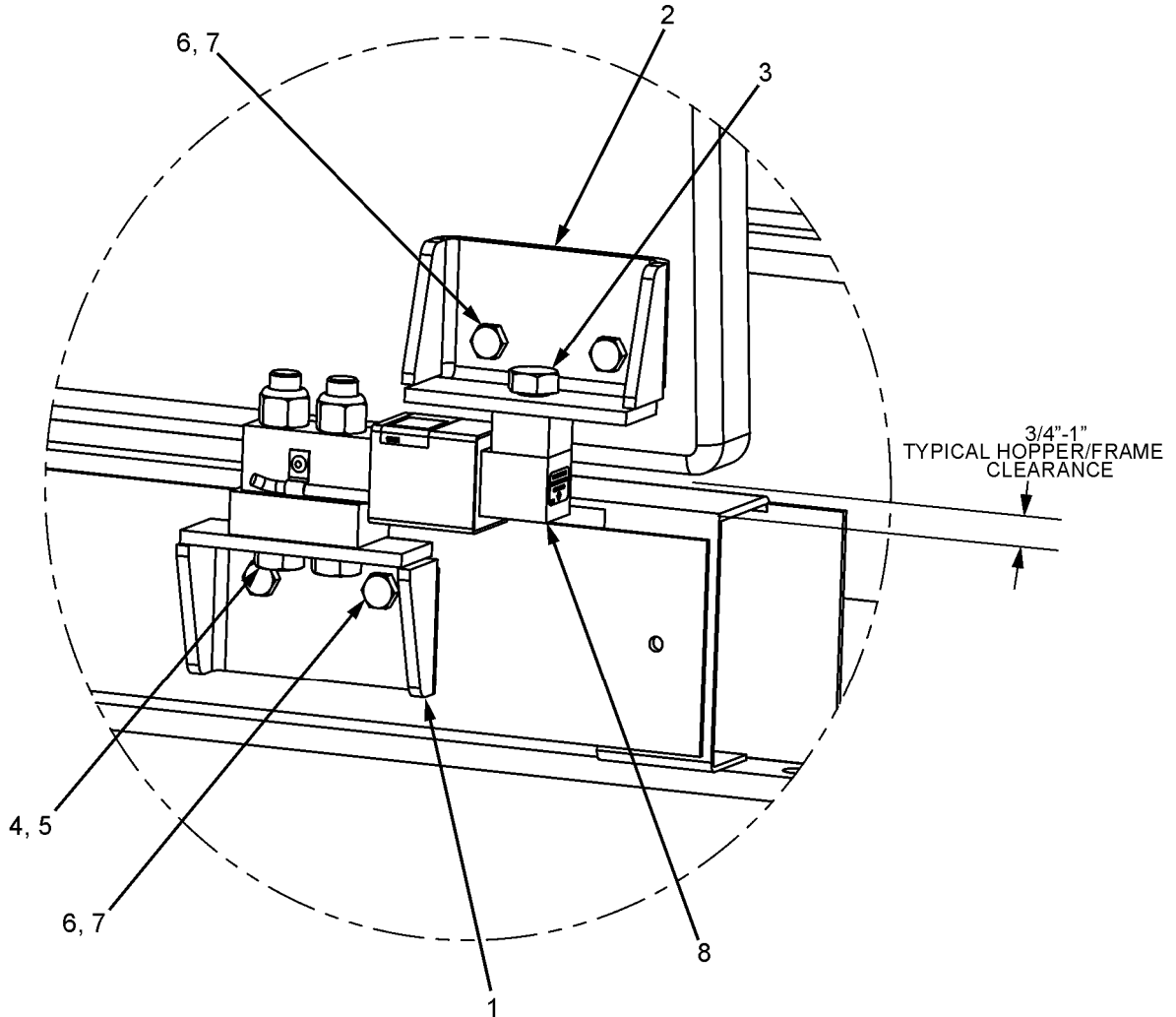
- If the weight is not within the four to six pound range, the drive chain might be too tight or the clutch is binding. Loosen the chain and check the weight again.
- If loosening the chain does not fix the problem, you must remove the clutch arm, and then check the weight on both sides. **NOTE:** *The clutch arm needs to be on the back of the clutch to work properly.*

The second test is to lift the drill to a level area and zero the scale. Lift the drill 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 not, remove the clutch arm and repeat the test. If this solves the weigh problem, the clutch is binding or it needs lubrication. **NOTE:** *The clutch arm needs to be on the back of the clutch to work properly.*

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

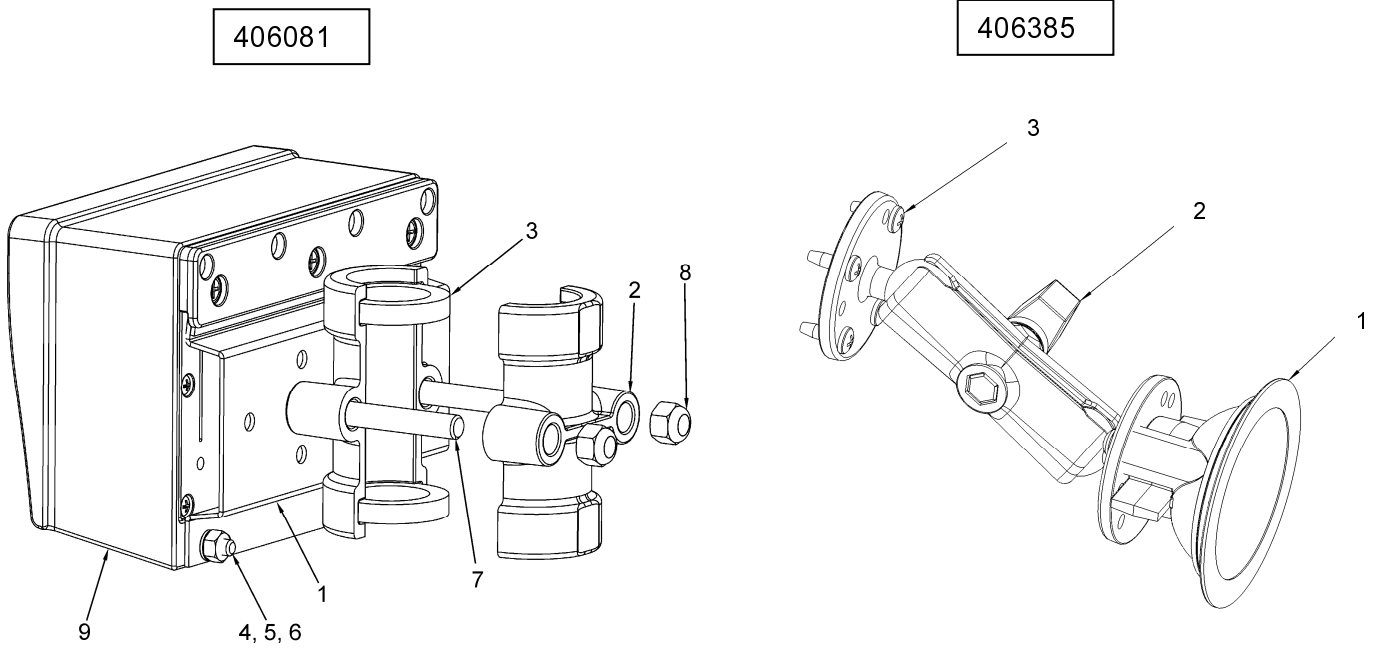
REPAIR PARTS

406820 Kit – Scale System – Universal



KEY	QTY.	PART NO.	DESCRIPTION
1	4	406814	Weld – Lower Mnt 1.5 SQ DB
2	4	406815	Weld – Upper Mnt 1.5 SQ DB
3	4	406067	Scr-3/4-16 x 2.0 HHCS ZP GR 5
4	8	405895	Scr-3/4-10 x 4.0 HHCS ZP GR 5
5	8	405921	Nut-3/4-10 Top Lock ZP
6	16	406459	Scr-1/2-13 x 1.5 HHCS ZP GR 5
7	16	406085	Nut-1/2-13 Ser Flange ZP
8	4	404284	Cell – 1.5 SQ DB – 21 Ft

Indicator Swivel Mount



406081			
KEY	QTY.	PART NO.	DESCRIPTION
1	1	403980	Brkt – Robo Mtg
2	2	406086	Brkt – Swivel Cast (JD H161618)
3	2	406087	Gasket – 1.813OD x 1.218 ID x .313 WID
4	2	400036	Scr – 1/4-20 x 3/4 HHCS ZP
5	2	400038	Washer – Lock 1/4 ZP
6	2	400035	Nut – 1/4-20 ZP
7	2	405989	Scr – 3/8-16 x 3.0 HHCS ZP Grd 5
8	2	404292	Nut – 3/8-16 Nyloc ZP
9	2	405612	GT400 Indicator (Not included in kit 406081)

406385			
KEY	QTY.	PART NO.	DESCRIPTION
1	1	404230	Ram Suction Cup with Twist Lock
2	2	403180	Assembly – 1” Ram Mount
3	2	403779	Scr - #10 x 5/8 PHSTS 48-2 Blk ZP

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.

- 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.
- 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.
- 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) loan, 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.
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- 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.
- 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.
- 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.
- 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.
- 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.