Manual

Grain Cart Hitch Retrofit from 2-7/8" to 3-3/4" Scale Bar

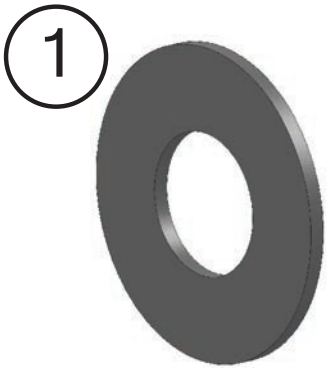
12 & 22 Series Grain Carts

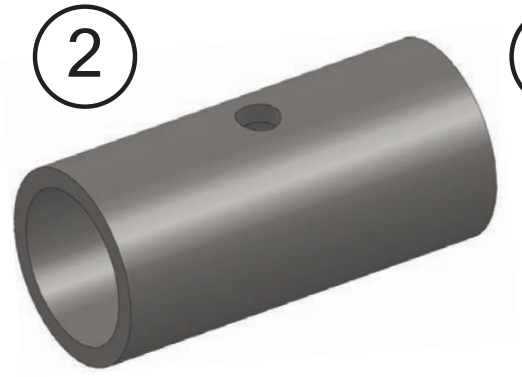
Rev. 2.22.2021

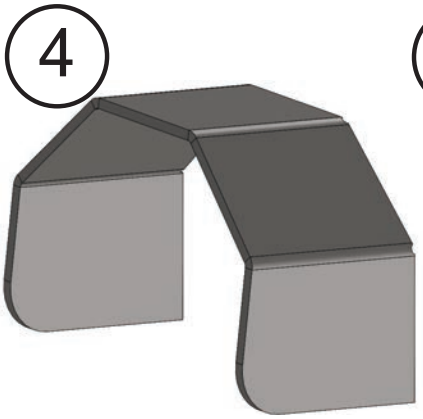
J&M Manufacturing Co, Inc
284 Railroad Street - P.O. Box 547 | Fort Recovery, OH 45846 | Ph: (419) 375-2376 | Fax: (419) 375-2708
www.jm-inc.com

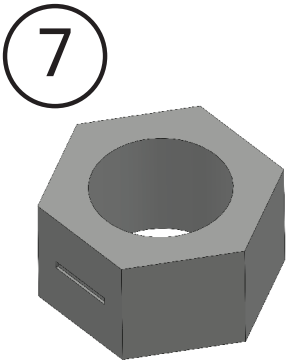
Required Parts

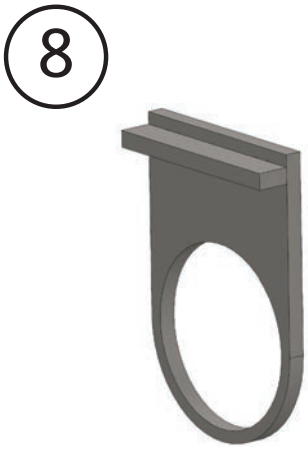
	Description	Part No.	Quantity
1	Frame Washer	JM0030408	1
2	Spool – for 3-3/4" Neck Down to 2-7/8" Scale Bar	JM0073393	1
3	Fill Ring	JM0074120	2
4	Hitch Guard	JM0062833	1
5	1" ID x 3/16" GW x 1-3/8" GD Rubber Grommet	JM0016784	1
6	1"-8 x 6" Gr8 YZ Hex Bolt	JM0074245	2
7	1"-8 Gr 2 Z Centerlock Hex Nut	JM0002149	2
8	Front Torch Template	JM0074081	1
9	Rear Torch Template	JM0074104	1
10	Spool Weld Jig	JM0074088	1

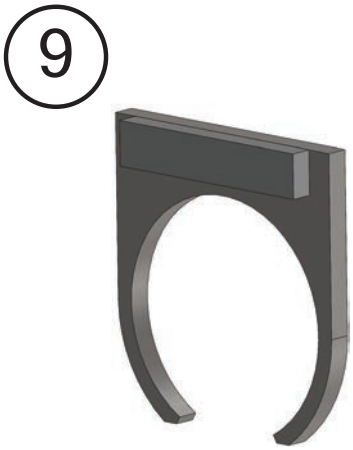


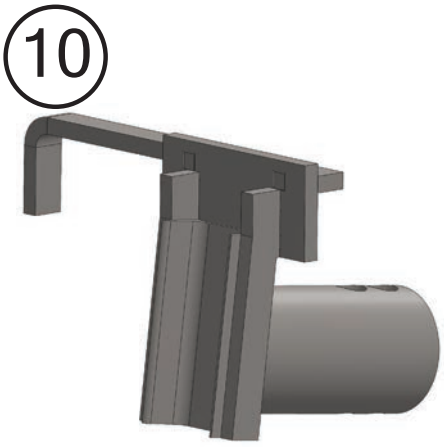












Step 1 – Disconnect and Remove Scale Bar

1. Locate the scale wire junction box (circled in yellow in *Figure 1*) located behind the auger rest throw arm.
2. Remove its cover and locate the hitch scale bar wire (middle of the 3 wires closest to the cover).
    - Take note of the hitch scale bar wire installation locations as you will need to install the new scale bar wires in the same locations.
3. Remove the hitch scale bar wire from the junction box.
4. Unbolt and remove the hitch.
5. Unbolt the hitch scale bar (the bolt is circled in yellow in *Figure 5*).
6. Remove the scale bar out the front & pull its wire out of the frame.
    - If you do not have a snake long enough to reach from the junction box to the hitch, be sure to connect a pull wire to the scale bar wire prior to removing the scale bar wire (pull wire to be used for routing the new scale bar wire).

Figure 1

Figure 2

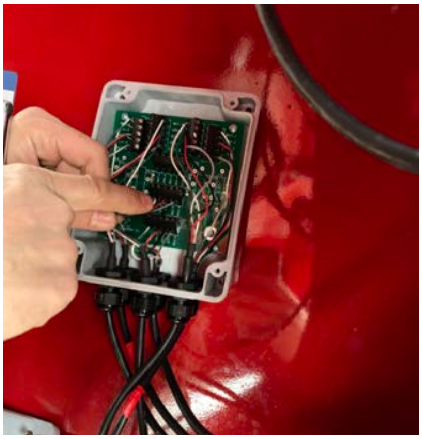


Figure 3

Figure 4

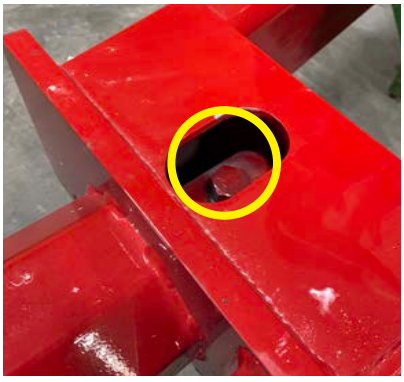


Figure 5

Step 2 – Create New Scale Bar Wire Routing Hole

1. Ensure the PTO shaft and hydraulic hoses are positioned out of the way to prevent heat damage from the torch and welding processes.
2. Identify the tube that had the hitch scale bar wire in it.
    - Located on the right side when standing at the hitch and looking back at the cart.
3. Cut approximately a 2" circle on the lower portion of the tube 2-3 inches behind the scale bar spool (shown in *Figure 6*).
    - Washer to be welded onto cover this hole is a 3" OD x 1-3/8" ID, so a perfect circle isn't needed.
4. Pull through the pull wire, if used (rather than a snake).
5. Cover the hole with the frame washer (JM0030408) and weld it in place (shown in *Figure 7*).

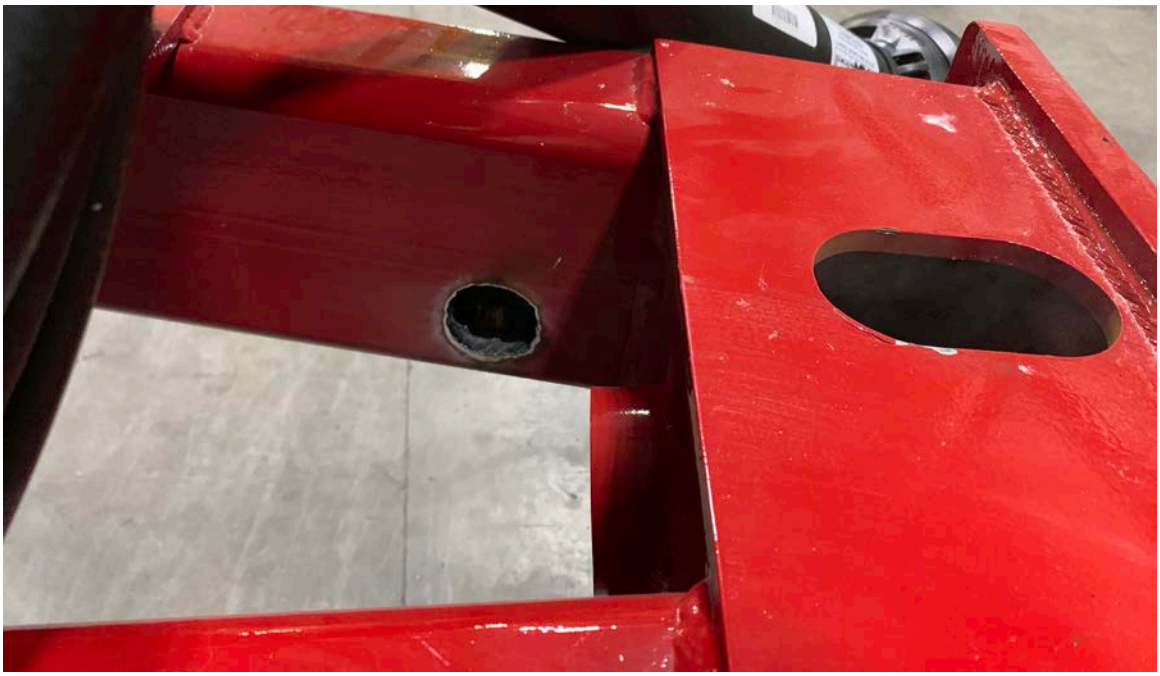


Figure 6

Figure 7

Step 3 – Remove Current Hitch Guard and Wire Guard

1. Remove the hitch and wire guards by cutting the welds (*Figures 8 and 9*).
2. Grind the remainder of the welds flush with the front plate (*Figure 10*).

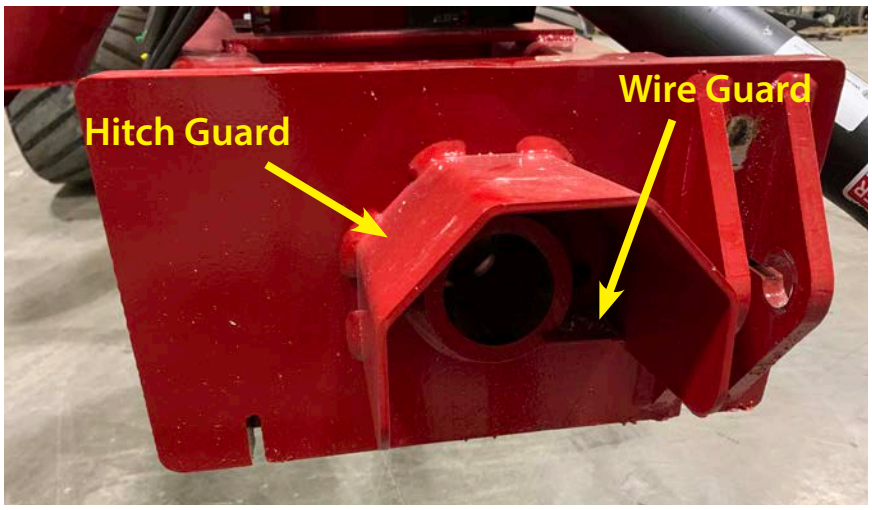


Figure 8

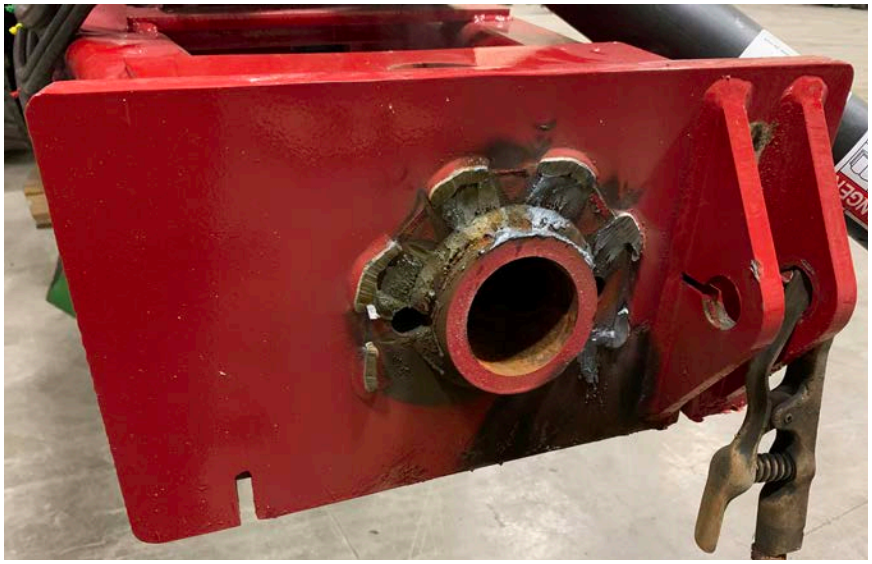


Figure 9

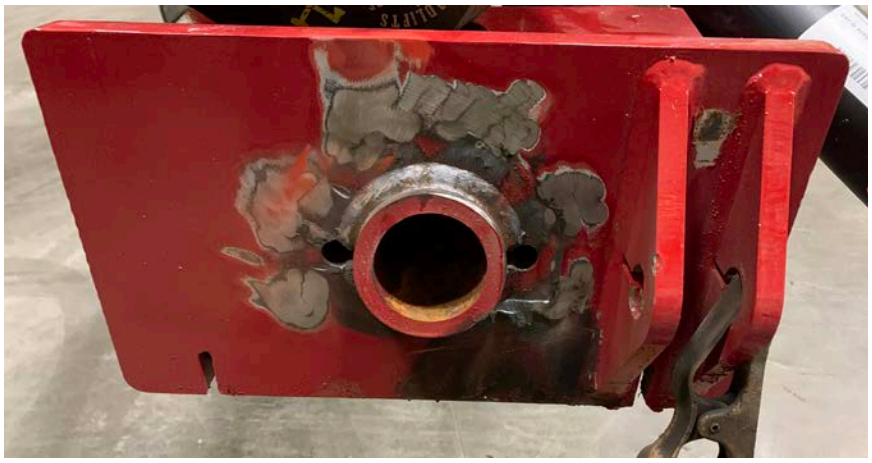


Figure 10

Step 4 – Remove Current Spool

1. Cut out the front of the spool using the front torch template (JM0074081).
    - Clamp (as shown in *Figure 11)* with template flush with the face and top of the front plate of the grain cart and visually centered on the spool.
2. Cut out the back of the spool using the rear torch template (JM0074104).
    - Clamp (as shown in *Figure 13)* after visually centering the template hole with the current spool's outer welds.
3. Remove the spool out the front. Using a sledge hammer is recommended.

Figure 11

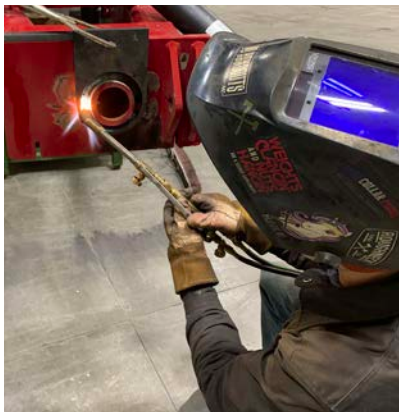


Figure 12

Figure 13

Figure 14

Figure 15

Step 5 – Tack New Spool In Place

1. Insert the new spool (JM0073393) onto the weld jig (JM0074088) and insert both into the torched hole (as shown in *Figure 16*).
2. Clamp (as shown in *Figure 17*) with the welding jig flush with the top, side, and front of the grain cart front plate.
3. Insert the 1" bolt used in your original spool through both the new spool & the weld jig to properly align the new spool (as shown in *Figure 18*).
4. Tack weld the new spool to both the front and rear plates
    - Only tack weld on the inside between the front & rear plates (need outside of front and rear plates to be flat for next step).

Figure 16

Figure 17

Figure 18

Figure 19

Step 6 – Weld New Spool

1. Insert the fill ring (JM0074120) onto the spool front (*as shown in Figures 20-22*) and weld it in place using a recommended weld bead size of 3/8" – 1/2".
2. Insert the fill ring (JM0074120) onto the spool rear (*as shown in Figure 23*) and weld it in place using a recommended weld bead size of 3/8" – 1/2".
3. Where possible, weld the inside (between the front & rear plates) where the tack welds were placed in Step 5 on page 7 (as shown in *Figure 24*).

Figure 20

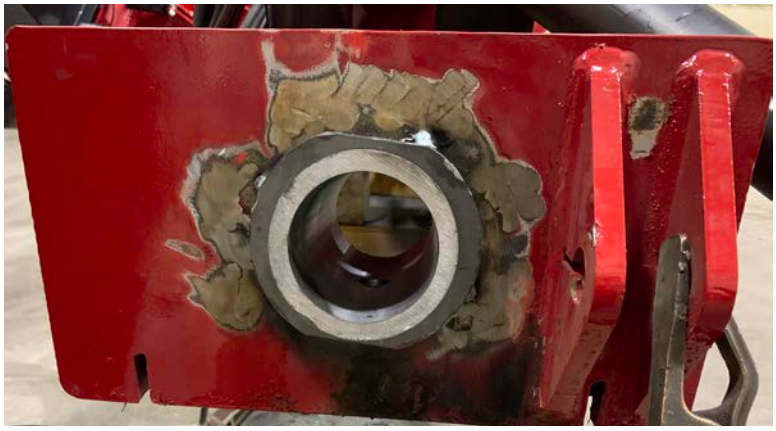


Figure 21

Figure 22

Figure 23

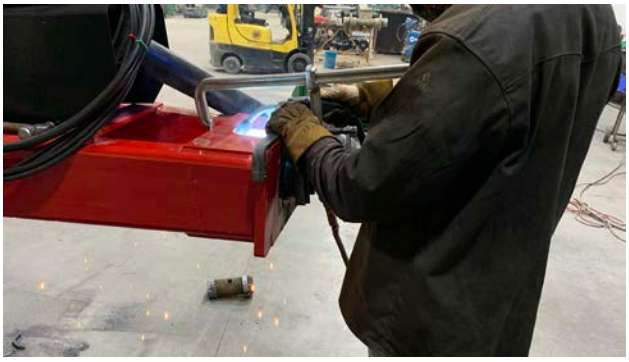


Figure 24

Step 7 – Weld New Hitch Guard

1. Visually center the new hitch guard (JM0062833) on the front plate over the welded spool.
2. Tack weld the guard in place.
3. Stitch weld the outside of the guard.

Figure 25

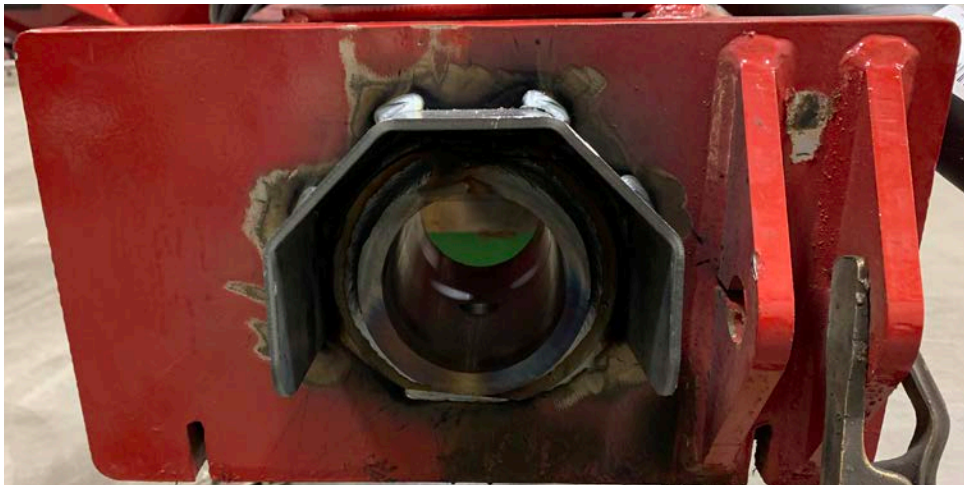


Figure 26

Step 8 – Paint New Parts

Touch up the hitch area with matching paint.

Figure 28

Figure 28

Step 9 – Install New Scale Bar

1. Install the rubber grommet (JM0016784) onto the washer that was installed in Step 2 on page 4 (as shown in *Figure 29*).
2. Insert the new scale bar into the spool from the back (as shown in *Figure 30*).
    - Ensure the bending direction arrow on the front of the scale bar is pointing up.
3. Align the scale bar hole with the new spool hole (as shown in *Figure 31*) and bolt the new scale bar in place using the new 1″-8 x 6″ bolt (JM0074245) and 1″-8 centerlock hex nut (JM0002149).
4. Route the scale bar wire through the rubber grommet, into the frame, up the frame leg, and out the frame by the junction box from Step 1 on page 3 (as shown in *Figure 32*).

Figure 29

Figure 30

Figure 31

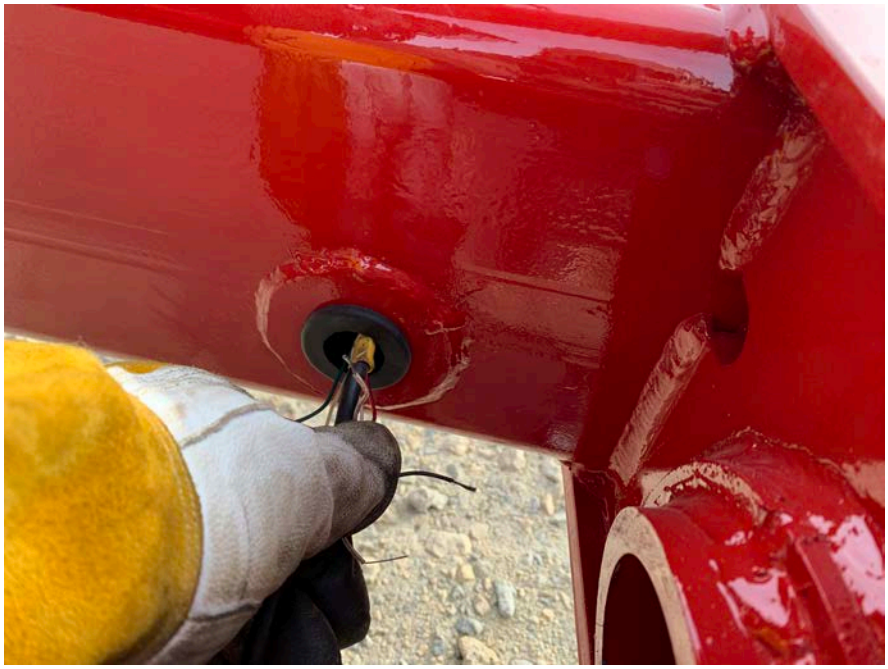


Figure 32

Step 10 – Install Scale Bar Wires

1. Install the scale bar wire ends the same way the previous scale bar wire ends were installed (circled in yellow in Figure 33).
    - Previous scale calibration should be acccurate within 1%. It is recommend to verify accuracy with the first 3-5 loads. If scales are not accurate, re-calibrate the scales system.

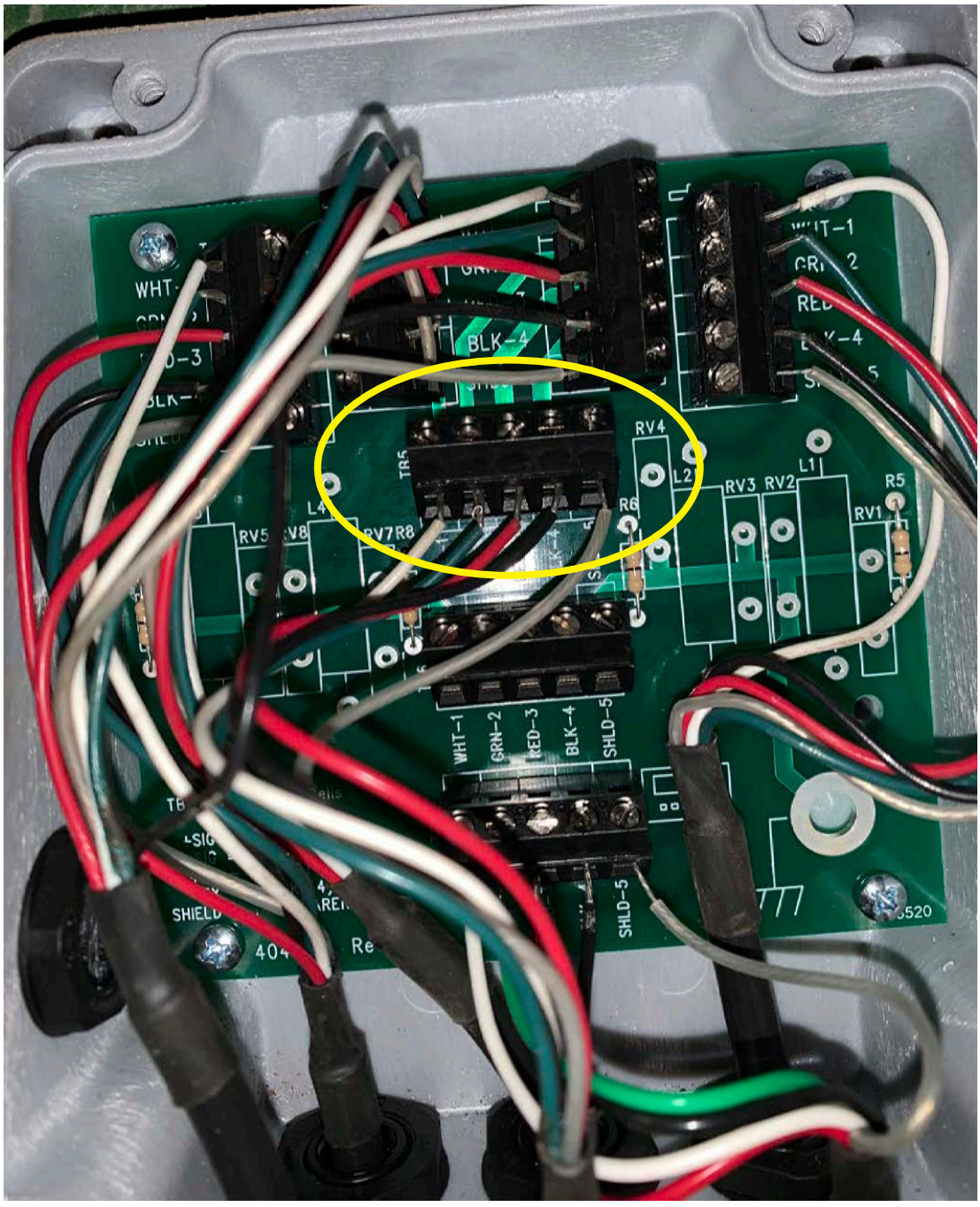


Figure 33

Step 11 – Install Hitch

Install the original hitch onto the new scale bar using the 1″-8 x 6″ bolt (JM0074245) and 1″-8 centerlock hex nut (JM0002149).

Note: Hitches made prior to 2021 will need the below modification made or a new hitch purchased in order to fit on the Digistar 3-3/4″ Neck Down to 2-7/8″ scale bar (JM0062691).