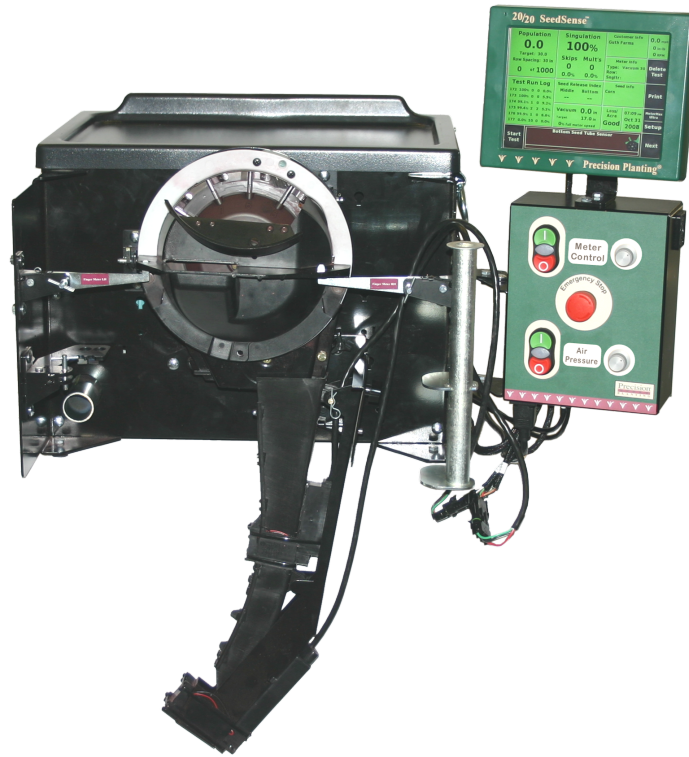


MeterMax® Ultra



Precision Planting®

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Legal & Safety Warnings

This product is warranted for one (1) year from date of purchase.

Precision Planting is not liable for any failures to the system or planting loss due to decisions made from the information presented on the MeterMax® Ultra.

The display unit contains some high voltage components and should be kept dry and closed. There are no serviceable components in this unit. Opening of the covers should be done by, or with guidance from trained personnel.



Keep hands, loose clothing, and hair away from all moving parts. Do not operate without safety shields in place. Unplug Test Stand when making adjustments or servicing.

Caution When Working With Treated Seed Corn

Treated Seed Corn is harmful if swallowed, inhaled, or absorbed through the skin. Avoid inhalation and contact with eyes, skin, or clothing. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash before reuse. If contact occurs with eyes, flush eyes with water for at least 15 minutes. Seek medical attention if eye, skin, or respiratory irritation persists. Seek prompt medical attention if swallowed. Treat symptomatically.

Overview

Overview of 20/20 Dashboard Screen when operating with a MeterMax Ultra Test Stand.

Dashboard

The dashboard screen pictured is the home screen for the 20/20 when connected with the MeterMax Ultra. All 20/20 monitors with current software can be operated on a MeterMax Ultra with no special programming. The monitor detects when it is connected to an Ultra and boots up in Ultra mode.

Population 32.1 Target: 32.0 Row Spacing: 30 in 1000 of 1000	Singulation 98.9% Skips 5 0.5% Mult's 6 0.6%		Customer Info D and D Farms Kinze 2600 Calibrated		5.0 mph 22 in-lb 67 RPM	Delete Test
	Meter Info Type: Finger 12 Row: 4 Brush: 3.5		Seed Info Corn DK7446 1665/lb Med Flat			
Test Run Log 294 98.8% 0 3 5.3% 295 99.2% 3 3 6.1% 296 98.6% 6 8 6.8% 297 99.2% 3 5 7.2% 298 99.2% 2 6 7.4% 299 98.9% 5 6 6.4%	Seed Release Index Middle Bottom 6.4% 8.6%		Vacuum 0.0 in Target 16.6 in 0% full motor speed		Loss/ Acre Good	Print 04:38 PM Dec 04 2008 ↑ ↓
	Exit Log		Finger 1 2 3 4 5 6 7 8 9 10 11 12 Skips 0 1 1 0 1 1 0 1 0 0 0 0 Mult's 1 0 1 0 2 0 0 1 0 1 0 1			

Population

The large black number at the top indicates actual population for the meter currently being tested. The smaller number below indicates the input target population. To enter this target population button, press POPULATION and use the keypad to enter the target population. Also displayed are row spacing and the status of the test run.

Population 32.1 Target: 32.0 Row Spacing: 30 in 1000 of 1000	Singulation 98.9% Skips 5 0.5% Mult's 6 0.6%		Customer Info D and D Farms Kinze 2600 Calibrated		5.0 mph 22 in-lb 67 RPM	Delete Test
	Meter Info Type: Finger 12 Row: 4 Brush: 3.5		Seed Info Corn DK7446 1665/lb Med Flat			
Test Run Log 294 98.8% 0 3 5.3% 295 99.2% 3 3 6.1% 296 98.6% 6 8 6.8% 297 99.2% 3 5 7.2% 298 99.2% 2 6 7.4% 299 98.9% 5 6 6.4%	Seed Release Index Middle Bottom 6.4% 8.6%		Vacuum 0.0 in Target 16.6 in 0% full motor speed		Loss/ Acre Good	Print 04:38 PM Dec 04 2008 ↑ ↓
	Exit Log		Finger 1 2 3 4 5 6 7 8 9 10 11 12 Skips 0 1 1 0 1 1 0 1 0 0 0 0 Mult's 1 0 1 0 2 0 0 1 0 1 0 1			

Singulation

The large black number at the top indicates the percentage of seeds being properly singulated by the meter being tested. Below this percentage is a breakdown of skips and multiples which is displayed both as an actual number of skips and multiples and as a percentage. Percentages displayed during the test are for the last fifty seeds while those displayed at the end of the run are for the whole run.

Population 32.1 Target: 32.0 Row Spacing: 30 in 1000 of 1000	Singulation 98.9% Skips 5 0.5% Mult's 6 0.6%		Customer Info D and D Farms Kinze 2600 Calibrated		5.0 mph 22 in-lb 67 RPM	Delete Test
	Meter Info Type: Finger 12 Row: 4 Brush: 3.5		Seed Info Corn DK7446 1665/lb Med Flat			
Test Run Log 294 98.8% 0 3 5.3% 295 99.2% 3 3 6.1% 296 98.6% 6 8 6.8% 297 99.2% 3 5 7.2% 298 99.2% 2 6 7.4% 299 98.9% 5 6 6.4%	Seed Release Index Middle Bottom 6.4% 8.6%		Vacuum 0.0 in Target 16.6 in 0% full motor speed		Loss/ Acre Good	Print 04:38 PM Dec 04 2008 ↑ ↓
	Exit Log		Finger 1 2 3 4 5 6 7 8 9 10 11 12 Skips 0 1 1 0 1 1 0 1 0 0 0 0 Mult's 1 0 1 0 2 0 0 1 0 1 0 1			

Seed Release Index (SRI)

SRI indicates the consistency of seed spacing. The lower the number, the more consistency in seed release. A normal range for this measurement is 5% to 12%. It is calculated by dividing the standard deviation of the seed spacing by the average seed spacing. SRI is calculated at both the middle and bottom seed tube sensors.

Population 32.1 Target: 32.0 Row Spacing: 30 in 1000 of 1000		Singulation 98.9% Skips 5 Mult's 6 0.5 0.6		Customer Info D and D Farms Kinze 2600 Calibrated		5.0 mph 22 in/s 67 rpm	
				Meter Info Type: Finger 12 Row: 4 Brush: 3.5		Delete Test	
Test Run Log		Seed Release Index Middle Bottom 6.4% 8.6%		Seed Info Corn DK7446 1665/lb Med Flat		Print	
294 98.8% 0 3 5.3% 295 99.2% 3 3 6.1% 296 98.6% 6 8 6.8% 297 99.2% 3 5 7.2% 298 99.2% 2 6 7.4% 299 98.9% 5 6 6.4%		Vacuum 0.0 in Target 16.6 in 0% full motor speed		Loss/ Ac Good		04:38 PM Dec 04 2008	
Exit Log		Finger 1 2 3 4 5 6 7 8 9 10 11 12 Skips 0 1 1 0 1 1 0 1 0 0 0 0 Mult's 1 0 1 0 2 0 0 1 0 1 0 1					

Vacuum

The first number indicates current vacuum pressure. Target indicates the target vacuum which you may enter by pressing this button and using the keypad or by using the knob on the control panel. This button also displays the percent of full motor speed currently used. Vacuum can be adjusted during a test run using the control knob. When operating in “White” mode, positive air pressure is displayed.

Population 32.1 Target: 32.0 Row Spacing: 30 in 1000 of 1000	Singulation 98.9% Skips 5 6 0.5% 0.6%		Customer Info D and D Farms Kinze 2600 Calibrated	5.0 mph 22 in/s 67 rpm	Delete Test							
	Meter info Type: Finger 12 Row: 4 Brush: 3.5											
	Test Run Log 294 98.8% 0 3 5.3% 295 99.2% 3 3 6.1% 296 98.6% 6 8 6.8% 297 99.2% 3 5 7.2% 298 99.2% 2 6 7.4% 299 98.9% 5 6 6.4%		Seed Release Index Middle Bottom 6.4% 8.6% Vacuum 0.0 in Target 16.6 in 0% full motor speed			Seed Info Corn DK7446 1665/lb Med Flat Loss/ Acre Good 04:38 PM Dec 04 2008						
Exit Log	Finger	1 2 3 4 5 6 7 8 9 10 11 12										
	Skips	0 1 1 0 1 1 0 1 0 0 0 0 0										
	Mult's	1 0 1 0 2 0 0 1 0 1 0 1 1										

Test Run Log

The test run log displays the results of the last six test runs performed on the MeterMax Ultra. The log displays the run number, singulation percentage, number of skips and multiples, and the seed release index for each test run. Pressing the button allows you to see all of the test runs by using the up and down arrows.

Population 32.1 Target: 32.0 Row Spacing: 30 in 1000 of 1000		Singulation 98.9% Skips 5 6 0.5% 0.6%		Customer Info D and D Farms Kinze 2600 Calibrated		5.0 mph 22 in/s 67 rpm							
				Meter Info Type: Finger 12 Row: 4 Brush: 3.5		Delete Test							
Test Run Log		Seed Release Index Middle Bottom 6.4% 8.6%		Seed Info Corn DK7446 1665/lb Med Flat		Print							
294 98.8% 0 3 5.3% 295 99.2% 3 3 6.1% 296 98.6% 6 8 6.8% 297 99.2% 3 5 7.2% 298 99.2% 2 6 7.4% 299 98.9% 5 6 6.4%		Vacuum 0.0 in Target 16.6 in 0% full motor speed		Loss/ Acre Good		04:38 PM Dec 04 2008							
Exit Log		Finger 1 2 3 4 5 6 7 8 9 10 11 12 Skips 0 1 1 0 1 1 0 1 0 0 0 0 0 Mult's 1 0 1 0 2 0 0 1 0 1 0 1 0										↑ ↓	

Customer Info

The Customer Info button displays the customer name, planter, and a memo. The memo may indicate the type of test run (PRETEST or CALIBRATED). You may also enter a custom memo by selecting OTHER under memo and using the key pad. By selecting NONE, the memo line will be left blank.

Population 32.1 Target: 32.0 Row Spacing: 30 in 1000 of 1000		Singulation 98.9% Skips 5 Mult's 6 0.5% 0.6%		Customer Info D and D Farms Kinze 2600 Calibrated		5.0 mph 22 in/s 67 fpm								
				Meter Info Type: Finger 12 Row: 4 Brush: 3.5		Delete Test								
Test Run Log				Seed Release Index Middle Bottom 6.4% 8.6%		Seed Info Corn DK7446 1665/lb Med Flat								
294 98.8% 0 3 5.3% 295 99.2% 3 3 6.1% 296 98.6% 6 8 6.8% 297 99.2% 3 5 7.2% 298 99.2% 2 6 7.4% 299 98.9% 5 6 6.4%				Vacuum 0.0 in Target 16.6 in 0% full motor speed		Loss/ Acre Good 04:38 PM Dec 04 2008								
Exit Log		Finger 1 2 3 4 5 6 7 8 9 10 11 12 Skips 0 1 1 0 1 1 0 1 0 0 0 0 Mult's 1 0 1 0 2 0 0 1 0 1 0 1											↓	

Meter Info

The Meter Info button displays the type of meter being tested, the row number of the meter, and a brush or singulator setting depending on the type of meter being tested.

Population 32.1 Target: 32.0 Row Spacing: 30 in 1000 of 1000		Singulation 98.9% Skips 5 Mult's 6 0.5 0.6		Customer Info D and D Farms Kinze 2600 Calibrated		5.0 mph 22 in/s 67 fpm/s								
				Meter Info Type: Finger 12 Row: 4 Brush: 3.5		Delete Test								
Test Run Log		Seed Release Index		Seed Info		Print								
294 98.8% 0 3 5.3% 295 99.2% 3 3 6.1% 296 98.6% 6 8 6.8% 297 99.2% 3 5 7.2% 298 99.2% 2 6 7.4% 299 98.9% 5 6 6.4%		Middle Bottom 6.4% 8.6%		Corn DK7446 1665/lb Med Flat										
		Vacuum 0.0 in Target 16.6 in 0% full motor speed		Loss/ Acre Good		04:38 PM Dec 04 2008								
Exit Log		Finger 1 2 3 4 5 6 7 8 9 10 11 12 Skips 0 1 1 0 1 1 0 1 0 0 0 0 0 Mult's 1 0 1 0 2 0 0 1 0 1 0 1 1											↑ ↓	

Seed Info

The Seed Info button displays the crop being tested and can also be programmed to display the hybrid used during the test. The hybrid list is shared from the 20/20 SeedSense.

Population 32.1 Target: 32.0 Row Spacing: 30 in 1000 of 1000		Singulation 98.9% Skips 5 Mult's 6 0.5% 0.6%		Customer Info D and D Farms Kinze 2600 Calibrated		5.0 mph 22 in/s 67 fpm								
				Meter Info Type: Finger 12 Row: 4 Brush: 3.5		Delete Test								
Test Run Log		Seed Release Index		Seed Info		Print								
294 98.8% 0 3 5.3% 295 99.2% 3 3 6.1% 296 98.6% 6 8 6.8% 297 99.2% 3 5 7.2% 298 99.2% 2 6 7.4% 299 98.9% 5 6 6.4%		Middle Bottom 6.4% 8.6%		Corn DK7446 1665/lb Med Flat										
		Vacuum 0.0 in Target 16.6 in 0% full motor speed		Loss/ Acre Good		04:38 PM Dec 04 2008								
Exit Log		Finger 1 2 3 4 5 6 7 8 9 10 11 12 Skips 0 1 1 0 1 1 0 1 0 0 0 0 Mult's 1 0 1 0 2 0 0 1 0 1 0 1											↑ ↓	

Loss/Acre

This button displays the cost of singulation and spacing errors for the meter being tested.

Parameters are customized in the setup menu. See the 20/20 SeedSense Owner's Manual for more information on the economics behind Loss/Acre.

Population 32.1 Target: 32.0 Row Spacing: 30 in 1000 of 1000	Singulation 98.9% Skips 5 Mult's 6 0.5% 0.6%	Customer Info D and D Farms Kinze 2600 Calibrated Meter Info Type: Finger 12 Row: 4 Brush: 3.5	5.0 mph 22 in-lb 67 rpm Delete Test
Test Run Log 294 98.8% 0 3 5.3% 295 99.2% 3 3 6.1% 296 98.6% 6 8 6.8% 297 99.2% 3 5 7.2% 298 99.2% 2 6 7.4% 299 98.9% 5 6 6.4%	Seed Release Index Middle Bottom 6.4% 8.6% Vacuum 0.0 in Target 16.6 in 0% full motor speed	Seed Info Corn DK7446 1665/lb Med Flat Loss/ Acres Good	Print 04:38:PM Dec 04 2008 ↑
Exit Log Finger Skips Mult's 1 2 3 4 5 6 7 8 9 10 11 12 0 1 1 0 1 1 0 1 0 0 0 0 1 0 1 0 2 0 0 1 0 1 0 1			

Time and Date

Because the 20/20 is not attached to a GPS receiver while working with the MeterMax Ultra, you may need to manually set the time and date when you first attach the monitor to the Ultra. Press this button to set your time zone, date, and time.

Population 32.1 Target: 32.0 Row Spacing: 30 in 1000 of 1000	Singulation 98.9% Skips 5 Mult's 6 0.5% 0.6%	Customer Info D and D Farms Kinze 2600 Calibrated 5.0 mph 22 in-lb 67 rpm	Meter Info Type: Finger 12 Row: 4 Brush: 3.5	Delete Test																																			
Test Run Log 294 98.8% 0 3 5.3% 295 99.2% 3 3 6.1% 296 98.6% 6 8 6.8% 297 99.2% 3 5 7.2% 298 99.2% 2 6 7.4% 299 98.9% 5 6 6.4%	Seed Release Index Middle Bottom 6.4% 8.6% Vacuum 0.0 in Target 16.6 in 0% full motor speed	Seed Info Corn DK7446 1665/lb Med Flat	Loss/acre 64:38% Dec 04 2008	Print ↑ ↓																																			
Exit Log <table><tr><td>Finger</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td><td>11</td><td>12</td></tr><tr><td>Skips</td><td>0</td><td>1</td><td>1</td><td>0</td><td>1</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>0</td></tr><tr><td>Mult's</td><td>1</td><td>0</td><td>1</td><td>0</td><td>2</td><td>0</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td></tr></table>	Finger	1	2	3	4	5	6	7	8	9	10	11	12	Skips	0	1	1	0	1	1	0	1	0	1	0	0	Mult's	1	0	1	0	2	0	0	1	0	1	0	1
Finger	1	2	3	4	5	6	7	8	9	10	11	12																											
Skips	0	1	1	0	1	1	0	1	0	1	0	0																											
Mult's	1	0	1	0	2	0	0	1	0	1	0	1																											

Speed

The first number displayed is meter speed in miles per hour. The button also displays in-lb, RPMs, and Target Speed. Target speed is entered by pressing this button and using the key pad. Speed can be adjusted using the knob on the control panel. Speed cannot be adjusted during a test run.

Population 32.1 Target: 32.0 Row Spacing: 30 in 1000 of 1000		Singulation 98.9% Skips 5 Mult's 6 0.5% 0.6%		Customer Info D and D Farms Kinze 2600 Calibrated		0.0 mph 0 in-lb 0 rpm							
				Meter Info Type: Finger 12 Row: 4 Brush: 3.5		Delete Test							
Test Run Log		Seed Release Index		Seed Info									
294 98.8% 0 3 5.3% 295 99.2% 3 3 6.1% 296 98.6% 6 8 6.8% 297 99.2% 3 5 7.2% 298 99.2% 2 6 7.4% 299 98.9% 5 6 6.4%		Middle Bottom 6.4% 8.6%		Corn DK7446 1665/lb Med Flat		Print							
		Vacuum 0.0 in Target 16.6 in 0% full motor speed		Loss/Acre Good		04:38 PM Dec 04 2008							
Exit Log		Finger 1 2 3 4 5 6 7 8 9 10 11 12 Skips 0 1 1 0 1 1 0 1 0 1 0 0 0 0 Mult's 1 0 1 0 2 0 0 1 0 1 0 1 0 1											

Delete Test

To delete a test run from the log, highlight that test run and press the DELETE TEST button.

Population 32.1 Target: 32.0 Row Spacing: 30 in 1000 of 1000		Singulation 98.9% Skips 5 Mult's 6 0.5% 0.6%		Customer Info D and D Farms Kinze 2600 Calibrated Meter Info Type: Finger 12 Row: 4 Brush: 3.5		5.0 mph 22 in/s 67 rpm								
Test Run Log 294 98.8% 0 3 5.3% 295 99.2% 3 3 6.1% 296 98.6% 6 8 6.8% 297 99.2% 3 5 7.2% 298 99.2% 2 6 7.4% 299 98.9% 5 6 6.4%		Seed Release Index Middle Bottom 6.4% 8.6%		Seed Info Corn DK7446 1665/lb Med Flat		Print								
		Vacuum 0.0 in Target 16.6 in 0% full motor speed		Loss/Acre Good		04:38 PM Dec 04 2008								
Exit Log		Finger 1 2 3 4 5 6 7 8 9 10 11 12 Skips 0 1 1 0 1 1 0 1 0 0 0 0 Mult's 1 0 1 0 2 0 0 1 0 1 0 1											↑ ↓	

Print

The print function allows you to print the results of four test runs on each sheet of paper. To select your four test runs, press TEST RUN LOG, highlight a test run, press SELECT, and press PRINT. The Print button will now display “1 of 4”. Repeat this process three more times until all four test runs are selected. Now, press PRINT again and a “print preview” will appear on the screen. Press PRINT again to print the results of the four test runs.

Population 32.1 Target: 32.0 Row Spacing: 30 in 1000 of 1000	Singulation 98.9% Skips 5 Mult's 6 0.5% 0.6%		Customer Info D and D Farms Kinze 2600 Calibrated	5.0 mph 22 in/s 67 rpm	Delete Test												
	Meter Info Type: Finger 12 Row: 4 Brush: 3.5																
Test Run Log 294 98.8% 0 3 5.3% 295 99.2% 3 3 6.1% 296 98.6% 6 8 6.8% 297 99.2% 3 5 7.2% 298 99.2% 2 6 7.4% 299 98.9% 5 6 6.4%	Seed Release Index Middle Bottom 6.4% 8.6%		Seed Info Corn DK7446 1665/lb Med Flat	Print													
	Vacuum 0.0 in Target 16.6 in 0% full motor speed					Loss/Acre Good 04:38 PM Dec 04 2008											
	Exit Log	Finger 1 2 3 4 5 6 7 8 9 10 11 12 Skips 0 1 1 0 1 1 0 1 0 0 0 0 Mult's 1 0 1 0 2 0 0 1 0 1 0 1															

MeterMax Ultra Setup

This button accesses the multiple setup screens which setup and customize the 20/20 screens when in operation with MeterMax Ultra.

Population 32.1 Target: 32.0 Row Spacing: 30 in 1000 of 1000	Singulation 98.9% Skips 5 Mult's 6 0.5% 0.6%	Customer Info D and D Farms Kinze 2600 Calibrated	5.0 mph 22 in/s 67 rpm
Test Run Log 294 98.8% 0 3 5.3% 295 99.2% 3 3 6.1% 296 98.6% 6 8 6.8% 297 99.2% 3 5 7.2% 298 99.2% 2 6 7.4% 299 98.9% 5 6 6.4%	Seed Release Index Middle 6.4% Bottom 8.6% Vacuum 0.0 in Target 16.6 in 0% full motor speed	Meter Info Type: Finger 12 Row: 4 Brush: 3.5	Delete Test
Exit Log Finger 1 2 3 4 5 6 7 8 9 10 11 12 Skips 0 1 1 0 1 1 0 1 0 0 0 0 Mult's 1 0 1 0 2 0 0 1 0 1 0 1	Seed Info Corn DK7446 1665/lb Med Flat	Loss/ Acre 04:38 PM Dec 04 2008	Print Meter/Max Ultra Setup Next

Start Test

Once you have the meter mounted, the 20/20 display set up, the motor on, and the vacuum or air pressure on (if applicable), pressing this button will start the test run.

Population 32.1 Target: 32.0 Row Spacing: 30 in 1000 of 1000	Singulation 98.9% Skips 5 0.5% Mult's 6 0.6%		Customer Info D and D Farms Kinze 2600 Calibrated	5.0 mph 22 in/s 67 fpm/s
Test Run Log 294 98.8% 0 3 5.3% 295 99.2% 3 3 6.1% 296 98.6% 6 8 6.8% 297 99.2% 3 5 7.2% 298 99.2% 2 6 7.4% 299 98.9% 5 6 6.4%	Seed Release Index Middle Bottom 6.4% 8.6% Vacuum 0.0 in Target 16.6 in 0% full motor speed		Meter Info Type: Finger 12 Row: 4 Brush: 3.5	Delete Test
Start Test	Seed Info Corn DK7446 1665/lb Med Flat		Print	↑ ↓
	Loss/Acre 04:38 PM Dec 04 2008			
	Finger 1 2 3 4 5 6 7 8 9 10 11 12 Skips 0 1 1 0 1 1 0 1 0 0 0 0 Mult's 1 0 1 0 2 0 0 1 0 1 0 1			

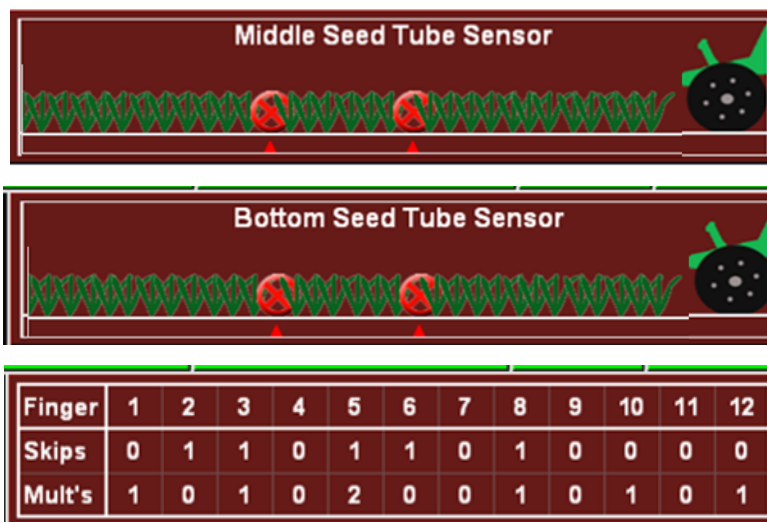
Next

This button scrolls among the screens for the Dashboard Mini Chart.

Population 32.1 Target: 32.0 Row Spacing: 30 in 1000 of 1000		Singulation 98.9% Skips 5 0.5% Mult's 6 0.6%		Customer Info D and D Farms Kinze 2600 Calibrated		5.0 mph 22 in/s 67 fpm			
Test Run Log 294 98.8% 0 3 5.3% 295 99.2% 3 3 6.1% 296 98.6% 6 8 6.8% 297 99.2% 3 5 7.2% 298 99.2% 2 6 7.4% 299 98.9% 5 6 6.4%		Seed Release Index Middle Bottom 6.4% 8.6%		Seed Info Corn DK7446 1665/lb Med Flat		Print			
		Vacuum 0.0 in Target 16.6 in 0% full motor speed		Loss/Acre Good 04:38 PM Dec 04 2008		MeterMax Ultra Setup			
		Exit Log							
						Delete Test			

Dashboard Mini Chart

When operating with a MeterMax Ultra, the Dashboard Mini Chart (DMC) displays screens illustrating seeds being planted by the row unit for the middle and bottom seed tube sensor. In addition, when calibrating a finger meter, this chart will also display a finger chart showing skips and multiples on each finger.



Setup and Configuration

Setting up the 20/20 Display Unit for operation with a MeterMax Ultra Test Stand.

The Setup & Configuration screen has all of the customizable features of the 20/20 SeedSense organized under five tabs across the top of the screen. Information displayed on any setup screen is tied to the tab that is highlighted at the top of the screen. To navigate between tabs, press the tab that you would like to explore. On the right side of the screen, the second black button allows you to clear all customized parameters and return to defaults. The SYSTEM, AUX, DIAGNOSE, and DATA tabs function like they do in normal 20/20 operations. When the 20/20 is plugged into the Ultra, the PLANT tab is replaced by the ULTRA tab.

Setup & Configuration				Home
Ultra	System	Aux	Diagnose	Data
Customer	Planter	Memo	Row Number	Clear All
		Pretest	14	
Crop	Seed	Population	Row Spacing	↑
Corn		33,000	30 in	
Meter Type	Cells/Rev	Seeds per Drop	Test Length	↓
Finger	12	1	1000	
Target Speed	Target Vacuum	Brush Setting	Advanced	← Back
5.0	17.0			

Ultra Tab

The Ultra Tab allows you to set up your 20/20 for operations with the MeterMax Ultra. Under this tab, you can enter specific customer related information (customer name and planter), information about the meter being tested (type, row number, etc), and details of what the meter is being set to plant (crop, seed hybrid, population, etc). This tab also includes an Advanced button that allows you to configure the operation of the Ultra and customize printouts to reflect your MeterMax agency.

Customer and Planter

These buttons allow you to identify the customer for whom the meter work is being performed. It also allows you to identify the planter from which the meters are taken. This is especially useful when calibrating meters for a customer with multiple planters. Pressing either button brings up a keypad with which to enter the customer's name or farm name and the planter respectively. You might refer to a planter by its model number (i.e. "1790"), number of rows (i.e. "24 row"), or some other identifying characteristic.

Setup & Configuration				Home
Ultra	System	Aux	Diagnose	Data
Customer	Planter	Memo	Row Number	Clear All
		Pretest	14	
Crop	Seed	Population	Row Spacing	↑
Corn		33,000	30 in	
Meter Type	Cells/Rev	Seeds per Drop	Test Length	↓
Finger	12	1	1000	
Target Speed	Target Vacuum	Brush Setting	Advanced	← Back
5.0	17.0			

Memo and Row Number

Pressing MEMO allows you to designate on the dashboard screen and printout whether this is a pretest or calibrated test run. You can also select other or none. Pressing ROW NUMBER allows you to designate which row of the planter is being tested.

Pressing CLEAR ALL, the black button on the right side of the screen, clears the Customer, Planter, Memo, Row Number, Seeds, and Brush Setting fields for a new customer.

Setup & Configuration					Home
Ultra	System	Aux	Diagnose	Data	
Customer	Planter	Memo	Row Number	Clear All	
		Pretest	14		
Crop	Seed	Population	Row Spacing	↑	
Corn		33,000	30 in		
Meter Type	Cells/Rev	Seeds per Drop	Test Length	↓	
Finger	12	1	1000		
Target Speed	Target Vacuum	Brush Setting	Advanced	←	Back
5.0	17.0				

Crop and Seed

Pressing the CROP button allows you to choose the crop used in testing the meter. Pressing CREATE NEW allows you to enter a new crop in the same way as in normal 20/20 operations.

Pressing SEED allows you to designate the specific hybrid used in the test. This is configured as in normal 20/20 operations. For more information, refer to the 20/20 SeedSense Owner's Manual.

Setup & Configuration					Home
Ultra	System	Aux	Diagnose	Data	
Customer	Planter	Memo	Row Number	Clear All	
		Pretest	14		
Crop	Seed	Population	Row Spacing	↑	
Corn		33,000	30 in		
Meter Type	Cells/Rev	Seeds per Drop	Test Length	↓	
Finger	12	1	1000		
Target Speed	Target Vacuum	Brush Setting	Advanced	←	Back
5.0	17.0				

Population and Row Spacing

Pressing the POPULATION button allows you to set your target population for the test you will be running. Use the keypad to enter test population.

Pressing ROW SPACING allows you to select the row spacing of the planter so that population can be accurately calculated.

Setup & Configuration					Home
Ultra	System	Aux	Diagnose	Data	
Customer	Planter	Memo	Row Number	Clear All	
		Pretest	14		
Crop	Seed	Population	Row Spacing	↑	
Corn		33,000	30 in		
Meter Type	Cells/Rev	Seeds per Drop	Test Length	↓	
Finger	12	1	1000		
Target Speed	Target Vacuum	Brush Setting	Advanced	←	Back
5.0	17.0				

Meter Type and Cells/Rev

Pressing METER TYPE allows you to select the type of meter being tested.

Pressing CELLS/REV allows you to select the number of cells or holes in a disk or the number of fingers in a finger meter depending on the type of meter being tested.

Setup & Configuration					Home
Ultra	System	Aux	Diagnose	Data	
Customer	Planter	Memo	Row Number		Clear All
		Pretest	14		
Crop	Seed	Population	Row Spacing		↑
Corn		33,000	30 in		
Meter Type	Cells/Rev	Seeds per Drop	Test Length		↓
Finger	12	1	1000		
Target Speed	Target Vacuum	Brush Setting	Advanced		← Back
5.0	17.0				

Seeds per Drop and Test Length

Pressing SEEDS PER DROP allows you to designate how many seeds per drop you are measuring. With present capabilities, this will always be “1”.

Pressing TEST LENGTH allows you to choose the number of seeds per run. Pressing OTHER allows you to customize your run length beyond the supplied choices.

Setup & Configuration					Home
Ultra	System	Aux	Diagnose	Data	
Customer	Planter	Memo	Row Number		Clear All
		Pretest	14		
Crop	Seed	Population	Row Spacing		↑
Corn		33,000	30 in		
Meter Type	Cells/Rev	Seeds per Drop	Test Length		↓
Finger	12	1	1000		
Target Speed	Target Vacuum	Brush Setting	Advanced		← Back
5.0	17.0				

Target Speed and Target Vacuum

Pressing TARGET SPEED allows you to designate a target speed for the test. Speed can also be adjusted before the test run begins by using the knob on the control panel. Speed cannot be adjusted during a test run.

Pressing TARGET VACUUM allows you to designate a target vacuum for the test. Vacuum can also be adjusted both before and during a test run by using the knob on the control panel.

Setup & Configuration					Home
Ultra	System	Aux	Diagnose	Data	
Customer	Planter	Memo	Row Number		Clear All
		Pretest	14		
Crop	Seed	Population	Row Spacing		↑
Corn		33,000	30 in		
Meter Type	Cells/Rev	Seeds per Drop	Test Length		↓
Finger	12	1	1000		
Target Speed	Target Vacuum	Brush Setting	Advanced		← Back
5.0	17.0				

Brush Setting and Advanced

Pressing BRUSH SETTING allows you to enter the brush setting used for a test run of a finger meter. When set up for a vacuum meter, this button will say “Singulator Setting” for the same purpose. When White Meter is selected, this button will display “Disk” and when Plate Meter is selected this button will display “Plate”.

Pressing the ADVANCED button brings up advanced setup screens as described below.

Setup & Configuration					Home
Ultra	System	Aux	Diagnose	Data	
Customer	Planter	Memo	Row Number		Clear All
		Pretest	14		
Crop	Seed	Population	Row Spacing		↑
Corn		33,000	30 in		
Meter Type	Cells/Rev	Seeds per Drop	Test Length		↓
Finger	12	1	1000		
Target Speed	Target Vacuum	Brush Setting	Advanced		← Back
5.0	17.0				

Motor Control

Under the ADVANCED button, pressing the MOTOR CONTROL button allows you to set the default Ultra response to the end of a test run. You can select CONTINUOUS RUN, METER AUTO OFF, or METER AND BLOWER AUTO OFF. This tells the Ultra either to keep running after the end of a test run, to shut off the motor at the end of a test run, or to shut off the motor and blower at the end of a test run.

Pressing HEADER INFORMATION allows you to customize the printouts of test runs to display your agency name, address, and any other information you would like to display.

MeterMax Ultra Advanced					Home
Ultra	System	Aux	Diagnose	Data	
Motor Control					Enter
Continuous Run					
Header Information					↑
					↓
					← Back

Printing Test Results

Note: Precision Planting does not offer a compatible printer for the Meter Max Ultra. Test runs may be saved to a USB and printed from a computer. Refer to page 20 for instructions on that process.

Once you have finished testing a customer's meters, you may print the results of the test runs for your customer. Follow the instructions on print button to select up to four test runs that will print on a single sheet. The printout below shows the results of two test runs for a finger meter and two for a vacuum meter. See the next two pages for a description of these printouts.



Smiths MeterMax
123 N Main
Tremont, IL 61568
Bring your meters in by Feb 1st for a
10 percent discount

Customer: D and D Farms	5.0 mph 23 in-lb 67 RPM	Population				Singulation				Seed Release Index			
Planter: Kinze 2600		32.1				99.2%				Middle		Bottom	
Memo: Calibrated		Target: 32.0				Skips 2 0.2%				7.4%		9.6%	
Row: 4		Row Spacing: 30 in				Mult's 6 0.6%							
Meter Type: Finger 12													
Brush: 3.5	Loss/ Acre <												

Customer: D and D Farms	5.0 mph 22 in-lb 67 RPM	Population			Singulation					Seed Release Index					
Planter: Kinze 2600			32.1			98.9%					Middle		Bottom		
Memo: Calibrated			Target: 32.0			Skips 5 0.5%					6.4%		8.6%		
Row: 4			Row Spacing: 30 in			Mult's 6 0.6%									
Meter Type: Finger 12	Loss/ Acre Good	Finger	1	2	3	4	5	6	7	8	9	10	11	12	
Brush: 3.5		Skips	0	1	1	0	1	1	0	1	0	0	0	0	
Crop: Corn		Mult's	1	0	1	0	2	0	0	1	0	1	0	1	
Seed: DK7446															
Desc: 1665/lb Med Flat															
Test Run: 299															

Customer: D and D Farms	5.0 mph	Population	Singulation	Seed Release Index				
Planter: JD 1790		32.0	99.7%					
Memo: Calibrated		41 in-lb	Target: 32.0	Skips 2 0.2%	Middle	Bottom		
Row: 4		27 RPM	Row Spacing: 30 in	Mult's 1 0.1%	6.6%	7.7%		
Meter Type: Vacuum 30	Loss/ Acre	Vacuum						
Singulator: 0								
Crop: Corn								
Seed: DK7446								
Desc: 1665/lb Med Flat								
Test Run: 302	Good	18.0 in						

Customer: D and D Farms	5.0 mph	Population 32.0 Target: 32.0 Row Spacing: 30 in	Singulation 99.9% Skips 0 0.0% Mult's 1 0.1%	Seed Release Index		
Planter: JD 1790				44 in-lb	Middle	Bottom
Memo: Calibrated				27 RPM	7.1%	7.8%
Row: 4						
Meter Type: Vacuum 30	Loss/ Acre Good	Vacuum 18.0 in				
Singulator: 0						
Crop: Corn						
Seed: DK7446						
Desc: 1665/lb Med Flat						
Test Run: 303						

Printing Finger Meter Tests

When printing the results of finger meter test runs, the report will look like this. The customer's information will display on the left side of each test report and includes customer, planter, memo, row, meter type, brush setting, crop, seed, seed description, and test run number. The next two blocks to the right display meter speed and loss per acre. Continuing to the right of the speed, the report displays the average population, singulation, and seed release index for the test run. Below these, a finger chart displays the skips and multiples for each finger during the test.



Smiths MeterMax
123 N Main
Tremont, IL 61568
Bring your meters by Feb 1st for a
10 percent discount

Customer: D - D Farms	5.0 mph	Population			Singulation					Seed Release Index				
Planter: Kinze 2600		32.1			98.6%									
Memo: Pretest		Target: 32.0			Skips 6 0.6%					Middle		Bottom		
Row: 1		Row Spacing: 30 in			Mult's 8 0.8%					6.6%		9.7%		
Meter Type: Finger 12		67 RPM												
Brush: 3.0	Loss/ Acre Good	Finger	1	2	3	4	5	6	7	8	9	10	11	12
Crop: Corn		Skips	0	0	0	3	0	0	0	0	1	1	1	0
Seed: Middle bin		Mult's	0	1	0	1	1	0	0	0	4	0	1	0
Desc: 1429/lb Med Flat														
Test Run: 339														

Customer: D - D Farms	5.0 mph 21 in-lb 67 RPM	Population			Singulation			Seed Release Index						
Planter: Kinze 2600		32.0			98.5%					Middle		Bottom		
Memo: Pretest		Target: 32.0			Skips 7 0.7%					5.8%		9.0%		
Row: 1		Row Spacing: 30 in			Mult's 8 0.8%									
Meter Type: Finger 12														
Brush: 3.0	Loss/ Acre Good	Finger	1	2	3	4	5	6	7	8	9	10	11	12
Crop: Corn		Skips	0	0	0	1	0	2	0	2	1	0	1	0
Seed: Middle bin		Mult's	1	0	1	0	0	1	1	1	1	0	2	0
Desc: 1429/lb Med Flat														
Test Run: 340														

Printing Vacuum Meter Tests

When printing the results of vacuum meter test runs, the report will look like this. The customer's information will display on the left side of each test report and includes customer, planter, memo, row, meter type, brush setting, crop, seed, seed description, and test run number. The next two blocks to the right display meter speed and loss per acre. Continuing to the right of the speed, the report displays the average population, singulation, and seed release index for the test run. Below these, in place of the finger chart, is the average vacuum level for the test run.



Smiths MeterMax
123 N Main
Tremont, IL 61568
Bring your meters in by Feb 1st for a
10 percent discount

Customer: D and D Farms	5.0 mph 44 in-lb 27 RPM	Population 32.0 Target: 32.0 Row Spacing: 30 in	Singulation 99.9% Skips 0 0.0% Mult's 1 0.1%	Seed Release Index	
Planter: JD 1790				Middle	Bottom
Memo: Calibrated				7.1%	7.8%
Row: 4					
Meter Type: Vacuum 30	Loss/ Acre Good	Vacuum 18.0 in			
Singulator: 0					
Crop: Corn					
Seed: DK7446					
Desc: 1665/lb Med Flat					
Test Run: 303					

Customer: D and D Farms	5.0 mph 41 in-lb 27 RPM	Population 32.0 Target: 32.0 Row Spacing: 30 in	Singulation 99.7% Skips 2 0.2% Mult's 1 0.1%	Seed Release Index	
Planter: JD 1790				Middle	Bottom
Memo: Calibrated				6.6%	7.7%
Row: 4					
Meter Type: Vacuum 30	Loss/ Acre Good	Vacuum 18.0 in			
Singulator: 0					
Crop: Corn					
Seed: DK7446					
Desc: 1665/lb Med Flat					
Test Run: 302					

Printing from a USB Drive

To print via USB, install a USB Drive into the port on the left hand side. Select a test run and press Print. You can select up to four runs to print at a time. Press Print again, the run log will pop up and save to the USB in a PDF format.

Population 0.0 Target: 35.0 Row Spacing: 30 in 0 of 1000	Singulation 100% Skips 0 Mult's 0 0.0% 0.0%	Customer info PPI Test Meter Info Type: Finger 12 Row: 6 Brush:	3.9 mph Delete Test
Test Run Log 1 0.0% 10 0 0.0% 4 100% 0 0 -- 5 100% 0 0 -- 7 100% 0 0 --	Seed Release Index Middle Bottom 0.0% 0.0% Vacuum -- Target 23.7 in On full motor speed	Seed Info Corn Loss/Acre Good 0% Stability 0.00 Amps 0% Duty Cycle	Print 4 of 4 ↑ ↓
Exit Log	Middle Seed Tube Sensor		

Metermax Ultra Print Preview

PRINTING
PREVIEW

3.7 mph
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Information from test runs may also be exported as a comma separated values file which can be opened as a spreadsheet on a computer. This file will include all data from all test runs for the calendar year. You can then manipulate this data to provide customized reports for your customers.

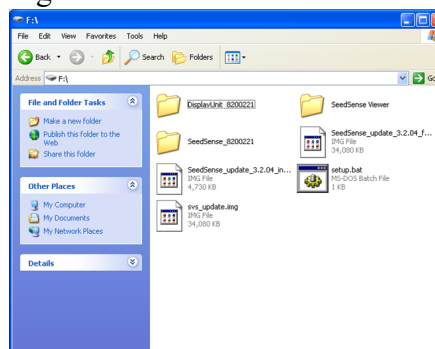
To export your test run data, press the SETUP button on the dashboard screen, select the DATA tab, press EXPORT, and then select FIELD MAP DATA. Press the file named METERMAX ULTRA so that it is the highlighted file in the list. Insert your USB drive into the side of the display unit. Press TRANSFER. The Status of the file will change from “New Data” to “Up-to-date”. Remove the USB drive from the display unit. (Fig 1.)

Now, insert the USB drive into a computer. Open the MY COMPUTER window and find a file folder called “SeedSense_” with 7 numbers after it. These seven numbers will match the serial number of your 20/20 display unit. Click on this file, click on the appropriate year folder, and then click on the “MeterMax Ultra” folder. (Fig. 2)

Figure 1.

2009 Field Map Data				Home
Name	Acres	Size (KB)	Status	Transfer
MeterMaxUltra	--	17	New Data	
				↑
				↓
				←
Transfer All	Refresh List	Delete	Delete All	Back

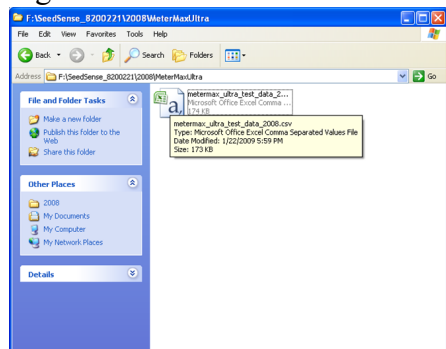
Figure 2.



This folder will include a file called “metermax_ultra_test_data_2008.csv”. The year in the file name will be for the year that the test runs were made in. For 2009 data, the file will be “metermax_ultra_test_data_2009.csv”. Double click on this file and it will open in whatever spreadsheet tool you have on your computer. The file path will look something like:

E:\SeedSense_8201054\2009\MeterMaxUltra\ metermax_ultra_test_data_2009.csv (Fig. 3)

Figure 3.



The comma separated values file will open in your spreadsheet program where you can manipulate the data, cut and paste the data into other formats, and perform other tasks with this data.

test_num	test_end	customer	planter_n	memo	row	crop	nam	seed_nam	seed_rate	seeds_per_meter
331	#####	D - D Farm	JD 1790	Pretest	1	Corn	Middle bi	1429/lb M	100	Finger
332	#####	D - D Farm	JD 1790	Pretest	1	Corn	Middle bi	1429/lb M	100	Finger
333	#####	D - D Farm	JD 1790	Pretest	1	Corn	Middle bi	1429/lb M	100	Finger
334	#####	D - D Farm	JD 1790	Pretest	1	Corn	Middle bi	1429/lb M	100	Finger
335	#####	D - D Farm	JD 1790	Pretest	1	Corn	Middle bi	1429/lb M	100	Finger
336	#####	D - D Farm	JD 1790	Pretest	1	Corn	Middle bi	1429/lb M	100	Finger
337	#####	D - D Farm	Kinze 2600	Pretest	1	Corn	Middle bi	1429/lb M	100	Finger
338	#####	D - D Farm	Kinze 2600	Pretest	1	Corn	Middle bi	1429/lb M	1000	Finger

Operating The Control Panel

The Control Panel of the MeterMax Ultra controls the operation and speed of the motor as well as the operation and control of the air pressure. This panel controls the operation of the MeterMax Ultra in conjunction with the 20/20 SeedSense Display Unit.

1. **Motor On/Off**

The set of buttons on the left start the motor (green) and stop the motor (Red). You can also set the motor to stop automatically at the end of each run.

2. **Speed Adjustment Knob**

Turning the knob clockwise increases speed. Turning the knob counterclockwise decreases speed. Each click on the knob is 0.1 mph. Speed can only be adjusted prior to the start of a test run.

3. **Emergency Stop**

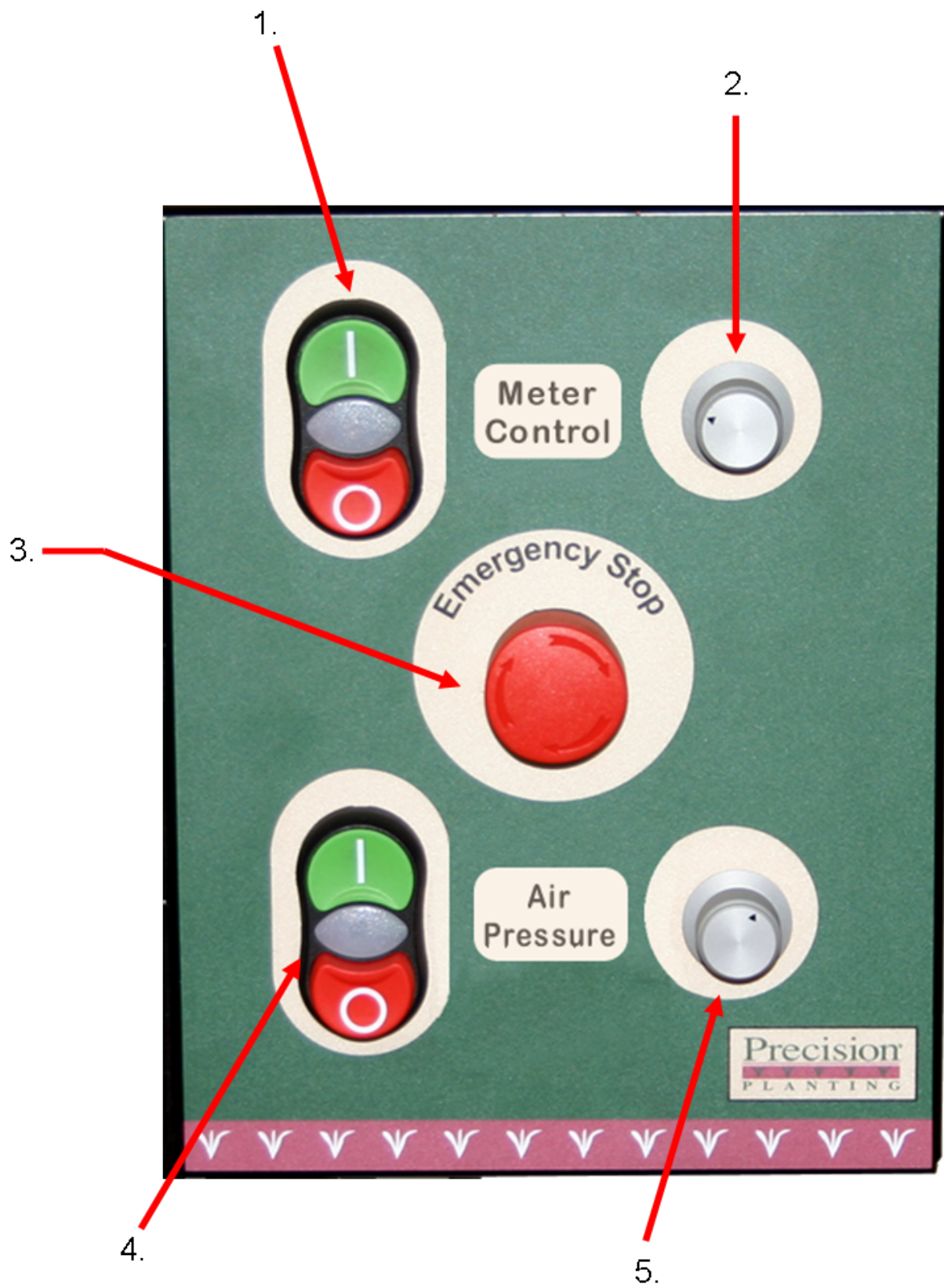
This button immediately shuts off the meter drive and vacuum if you need to stop the Ultra during a test run. Before restarting, you may need to release the Emergency Stop button by turning it clockwise.

4. **Air Pressure On/Off**

The buttons on the left start the air pressure (green) and stop the air pressure (red). You can also set the air pressure to stop automatically at the end of each test run.

5. **Air Adjustment Knob**

Turning the knob clockwise increases air pressure. Turning the knob counterclockwise decreases pressure. Each click of the knob is 0.1" of pressure. Vacuum can be adjusted before and during a test run.



Setting up The Control Panel

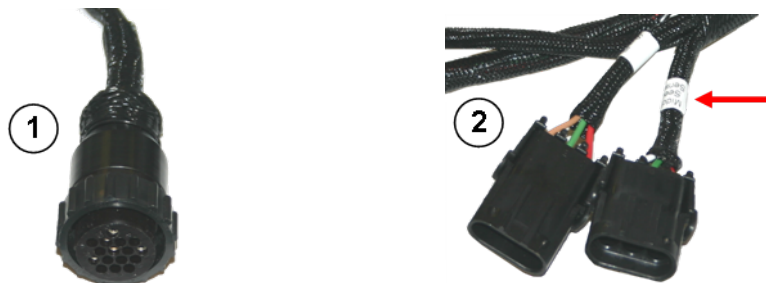
Getting the Control Panel and the 20/20 SeedSense Display setup on the MeterMax Ultra Test Stand.



Swing the control panel from the shipped in position to the out position.



Plug the power cable into the port on the control panel then plug the other end into a wall socket.



1. Plug and twist the 16 pin connector into the matching receptacle on the back of the 20/20 SeedSense Display.
2. Plug the weather-pack connectors from the control panel into the seed sensors. (Make sure to check the labels to see which connector is for which sensor. Both connectors are labeled.)

Mounting the 20/20 SeedSense Display

Mounting the 20/20 SeedSense Display to the MeterMax Ultra Control panel.

This bracket is unique to the MeterMax Ultra Test Stand. (keep this bracket)

Use this bracket to mount the 20/20 SeedSense Display to the MeterMax Ultra Control Panel.



Use these two bolts to Mount the Display bracket.



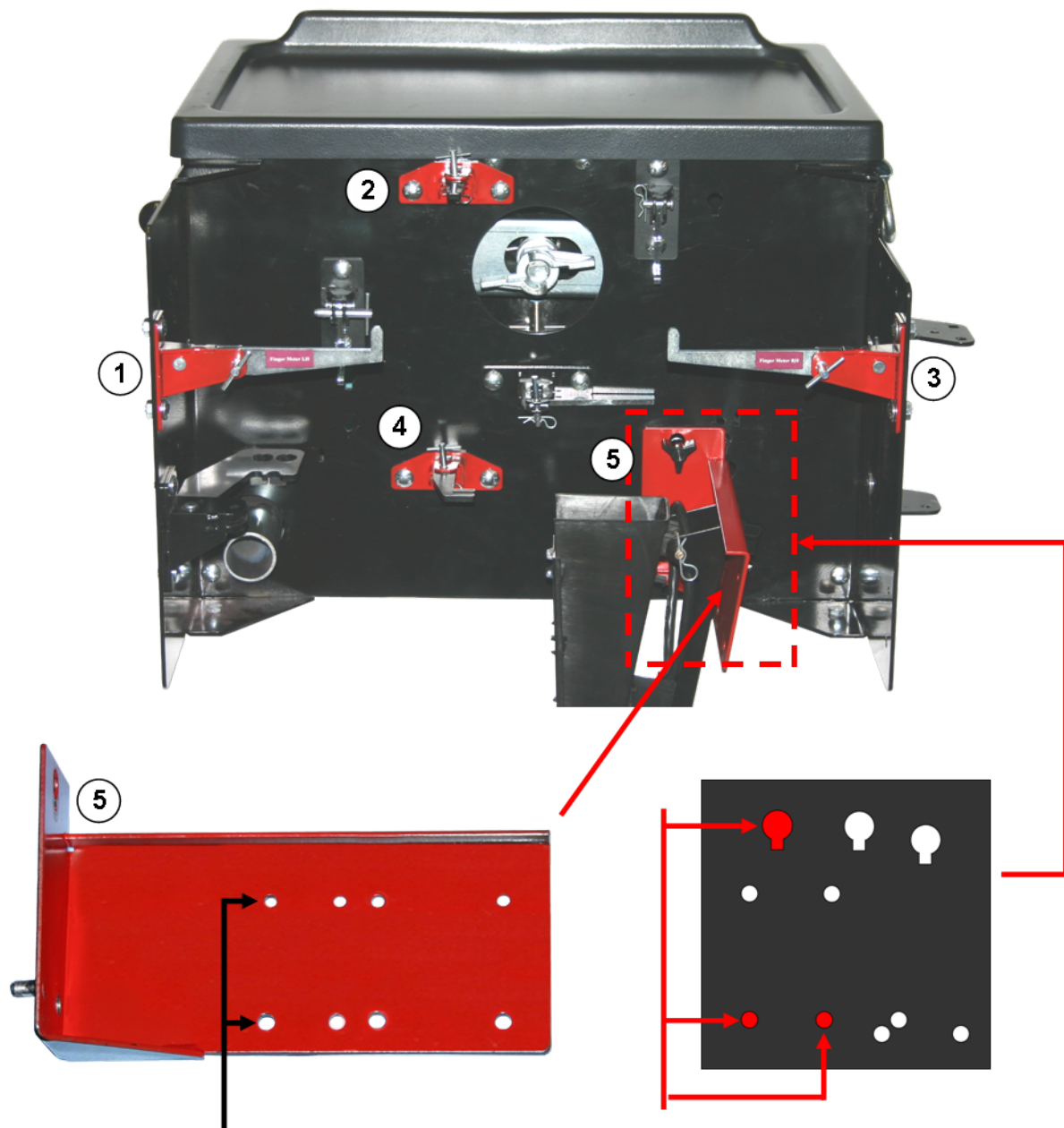
Use the bolt in the back of the display to secure the display to the mounting bracket.



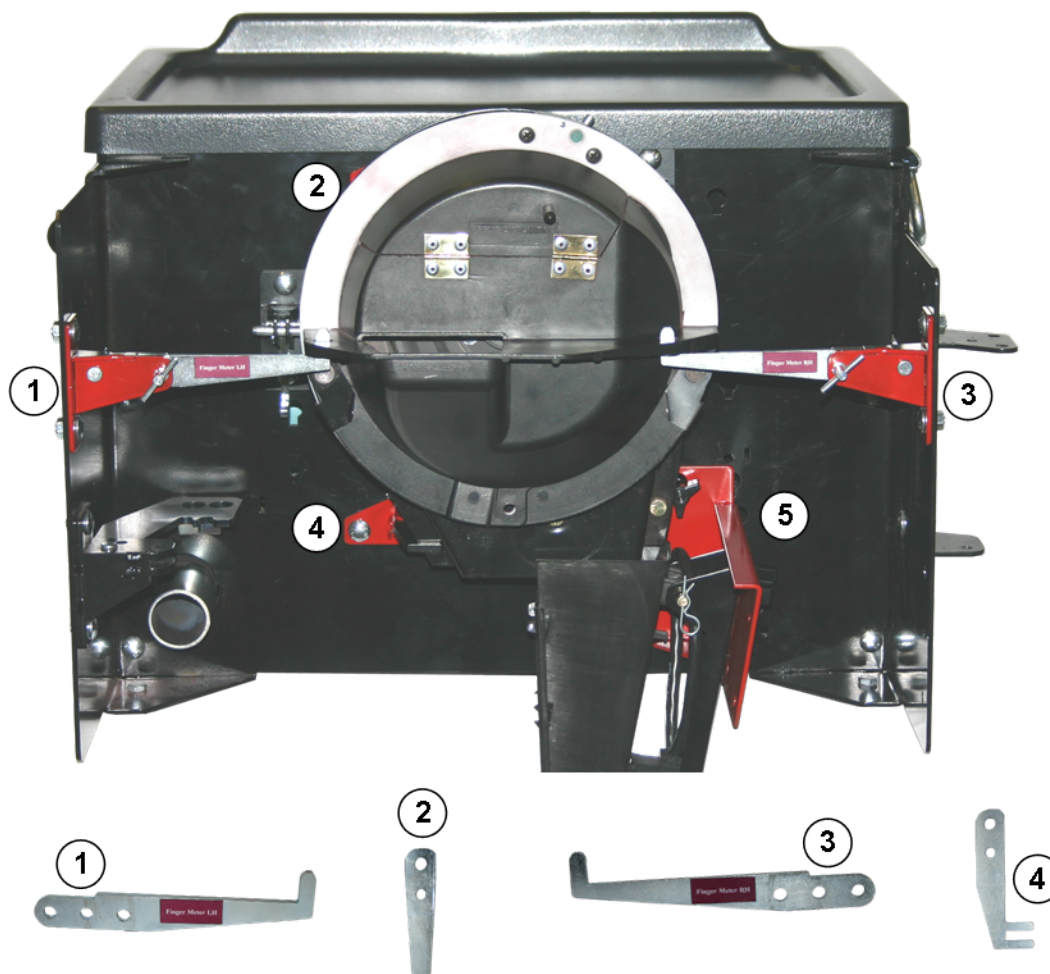
Finger Meter

The brackets shown in red are used to mount a finger meter on the MeterMax Ultra.

1. Raise the left hand finger meter hanger in the up position and insert pin to lock in place.
2. Swing rear upper meter support arm out toward meter and insert pin to lock in place.
3. Raise the right hand finger meter hanger in the up position and insert pin to lock in place.
4. Swing rear lower meter support arm toward meter and insert pin to lock in place.
5. The seed tube mount will use the holes shown and the top pin will be secured by a nut. The Seed Tube Bracket will go into the farthest left slots as shown, and the top slot will be secured with a bolt and nut.



Below shows the finger meter correctly mounted on the MeterMax Ultra Test Stand.



1. The left bracket arm secures the left side of the meter.
2. The upper meter support keeps the meter from wobbling forward and backward.
3. The right bracket arm secures the right side of the meter.
4. The lower meter support keeps the meter from wobbling forward and backward.
5. The seed tube bracket mount holds the seed tube in position.

Suggested Operating Parameters

Torque — 18–24 inch lbs.

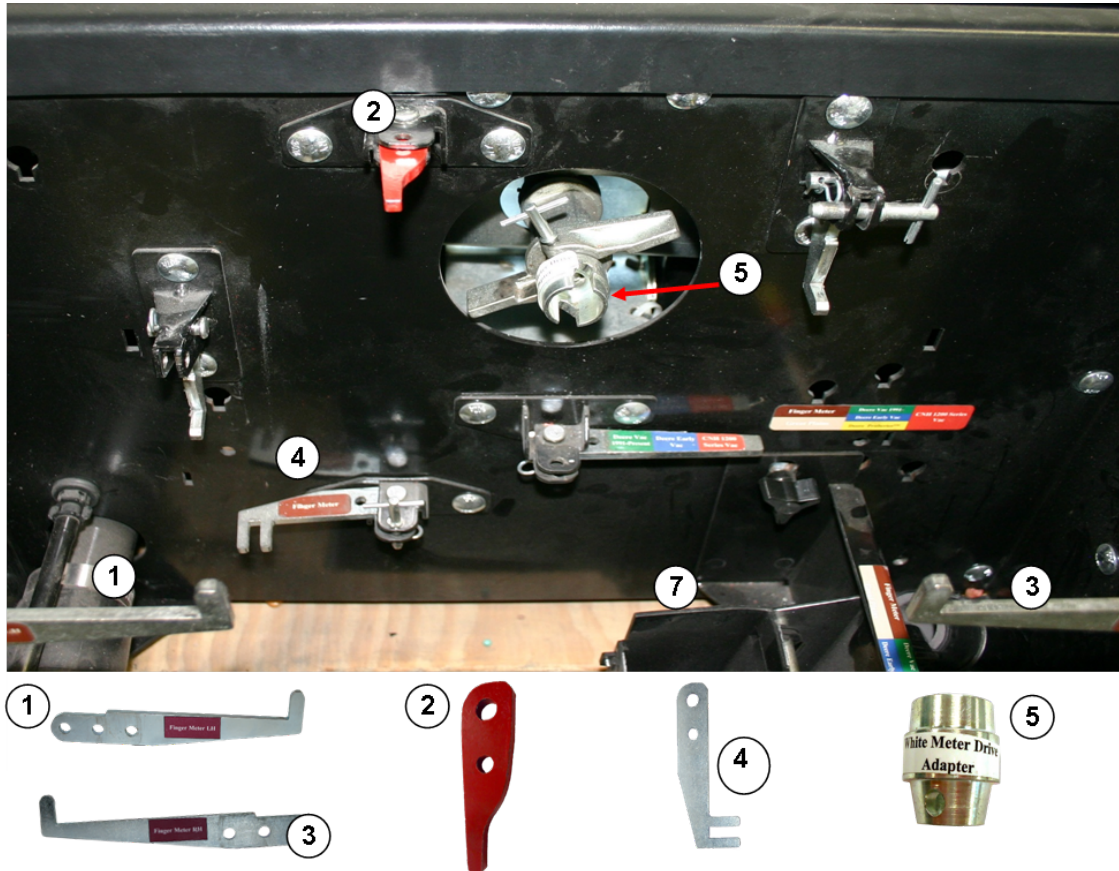
RPMs — 65 (rounds), 75 (flats)

Slower RPMs = more skips

Flat seeds have a higher tendency to skip. Increase RPMs accordingly with flats.

vSet Classic

Below shows the meter correctly mounted on the MeterMax Ultra Test Stand. When setting up the MeterMax Ultra test stand you will use the Finger Meter set up with a few changes. (see below)



1. Stays in the same position as with the finger meter set up.
2. The upper meter support keeps the Meter from wobbling forward and backward.
3. Stays in the same position as with the finger meter set up.
4. The lower meter support is not needed for this meter so we will fold it back.
5. The White Meter Drive Adapter (310007) is needed to run the vSet Classic. If it is not used, the vacuum elbow will be crushed.
6. The vacuum hose needs to be plugged into the meter to provide vacuum.
7. A 7000 style seed tube (BullsEye 700150) works best. You can also use a 7200 style (BullsEye 700160), or aWaveVision seed tube (700250).

Suggested Operating Parameters

Torque — 8–12 inch lbs.

Maximum RPMs — 100

Changing a Pusher Row to a Pull Row

You will need to replace the pusher row vacuum elbow with the pull row vacuum elbow to run it on the test stand. If you have a lot of pusher rows to run, then take off the bracket that is in the way.

Pusher Row Elbow



Pull Row Elbow



Mounted Properly

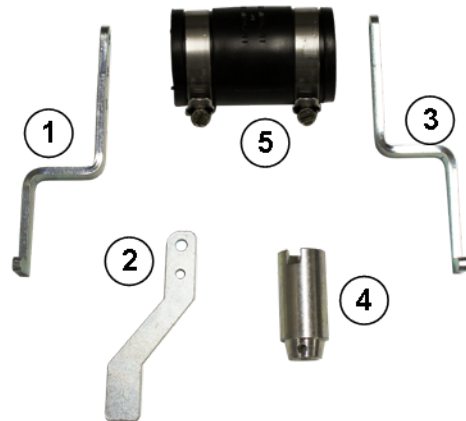


vSet Classic with Clear Vent

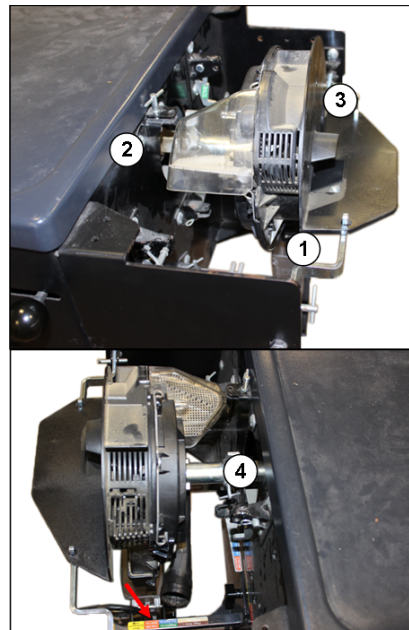
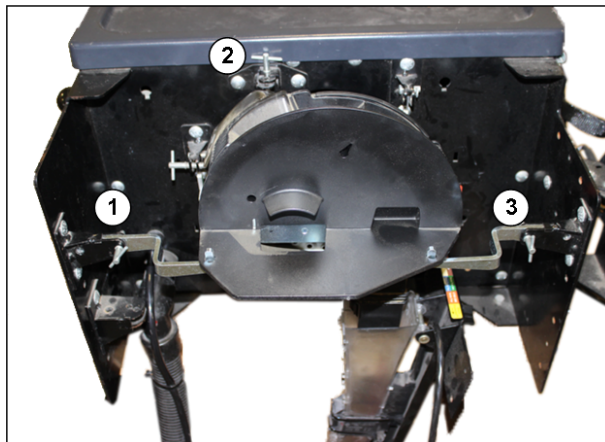
Using the Kinze 4900 Kit (310248), you will be able to run the vSet Classic meter with clear vent. With standard vSet brackets the clear vent has to be removed.



Note: Parts needed in the kit will be left and right hangers and drive adapter.



1. The left bracket arm secures the left side of the meter.
2. The upper meter support keeps the Meter from wobbling forward and backward.
3. The right bracket arm secures the right side of the meter.
4. The drive adapter extension engages the meter.
5. The vacuum adapter is used on Kinze 4900 Meter.



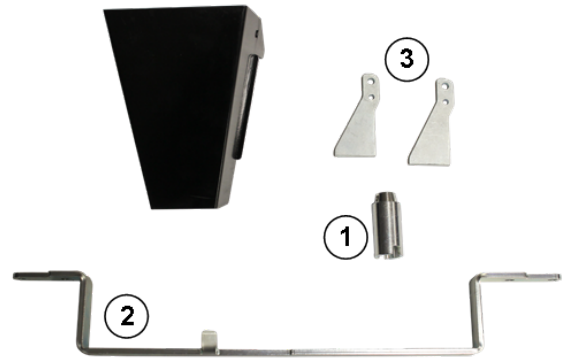
Seed tube bracket will be in the CNH position

vSet2 Meter

The 310245 vSet 2 Kit is used to mount both the seed tube and SpeedTube vSet 2 meters to the MeterMax Ultra Test Stand.

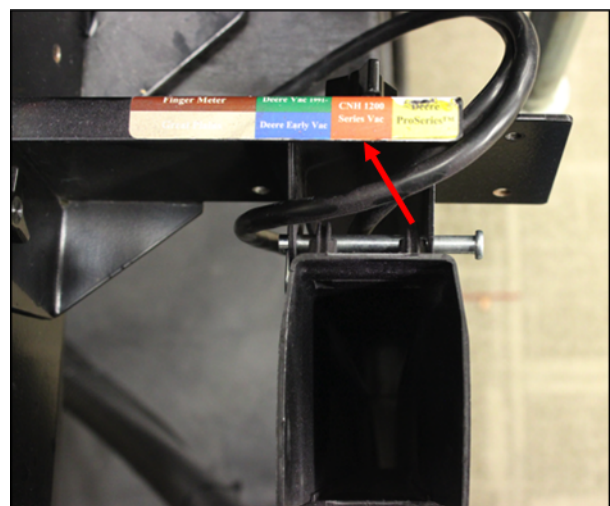
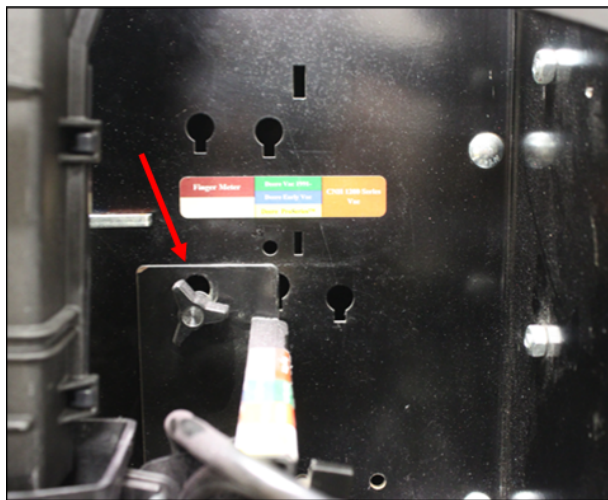
Parts List:

- **310301** Front Bracket (Qty. 1)
- **310302** vSet 2 Upper Pivot Plate (Qty. 1)
- **310303** vSet 2 Drive Adapter (Qty. 1)
- **310304** Funnel (Qty. 1)
- **310307** SpeedTube Upper Pivot Plate(Qty.1)



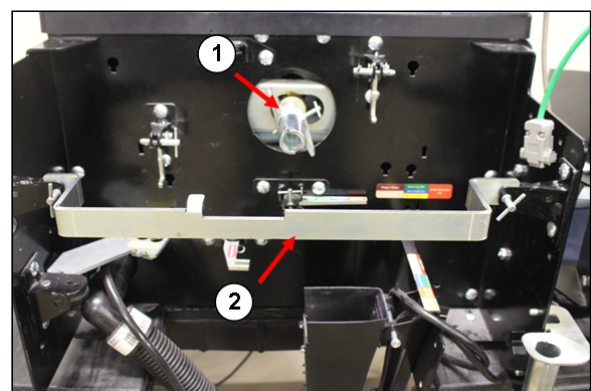
Step 1:

Move the seed tube bracket to the finger meter slot as shown in left image. Move the seed tube to the CNH position as shown in right image.



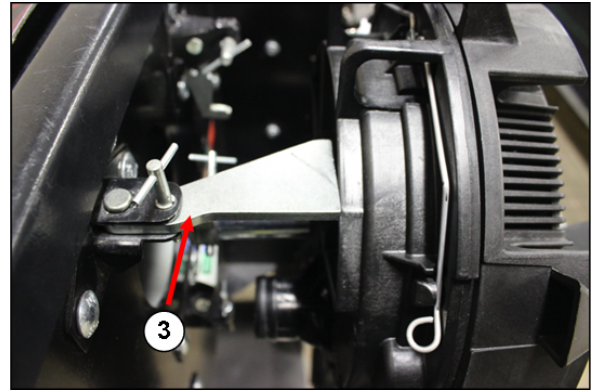
Step 2:

Install the 310303 Drive Adapter and the 310301 Front Bracket. To install the bracket, slide it up into the mounting points on each side of the meter stand.

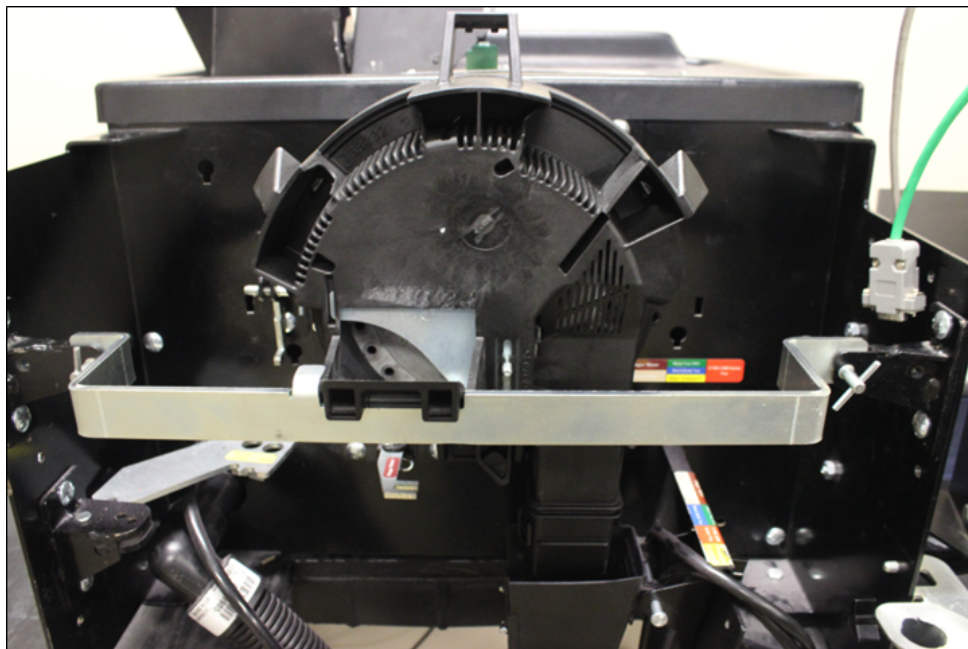
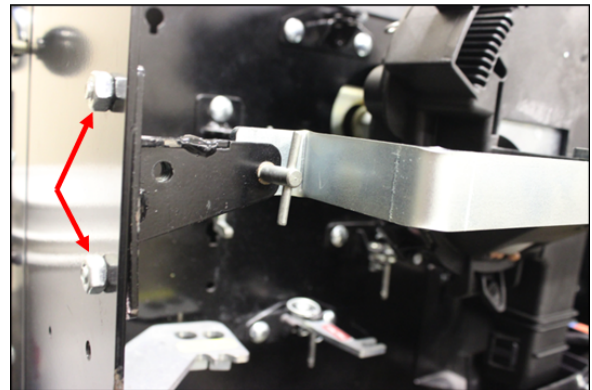


Step 3:

Install the pivot plate as shown in the image. Use the smaller pivot plate with vSet 2 (Seed Tube) or the longer pivot plate with the vSet 2 (SpeedTube).

**Step 4:**

Adjust the two side mounts as needed by loosening the nuts on each side of the stand. It is important that the meter is level with the flat surface of the meter cover being vertical.

**Suggested Operating Parameters**

Torque — 8–12 inch lbs.

Maximum RPMs — 100

vSet2 Monosem

Part Number 310250

Note: You will need to use the bracket from the 310205 Monosem Meter Kit.



Step 1:

Use kit 310205 along with the 310250.



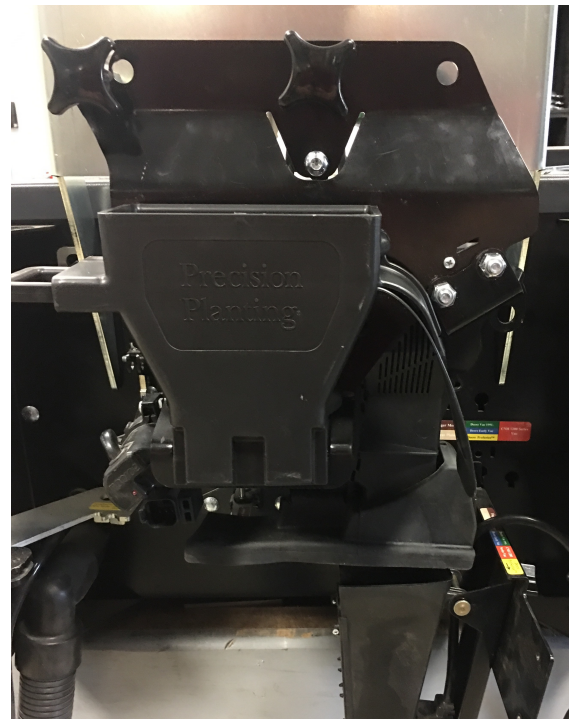
Step 2:

Install both bushings over the threads.



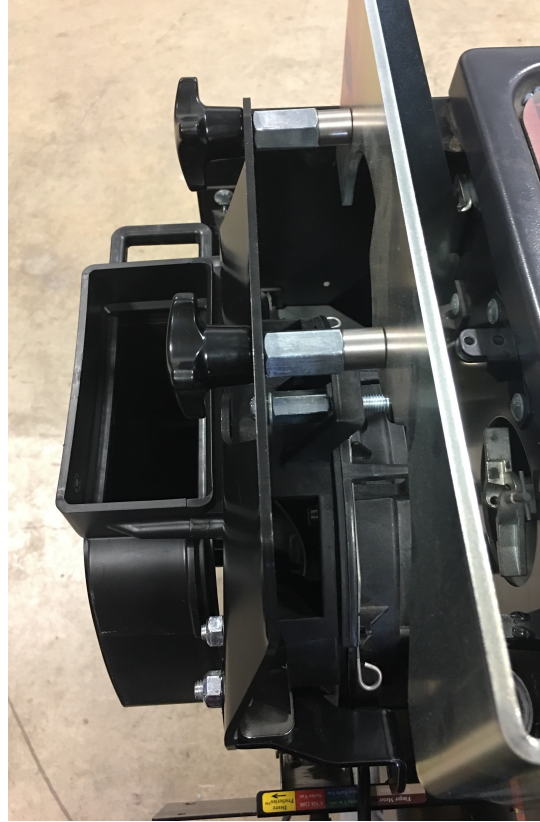
Step 3:

Install union nut and rod.



Step 4:

Install meter and tighten down the bracket.



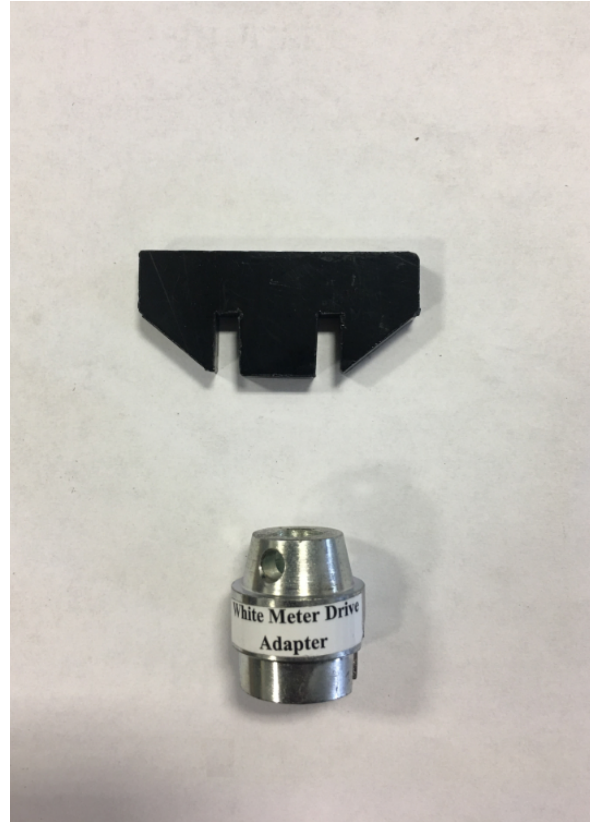
Step 5:

Install the seed tube bracket to the Ultra stand in the finger meter position. Then mount the seed tube in the Deere vacuum position.



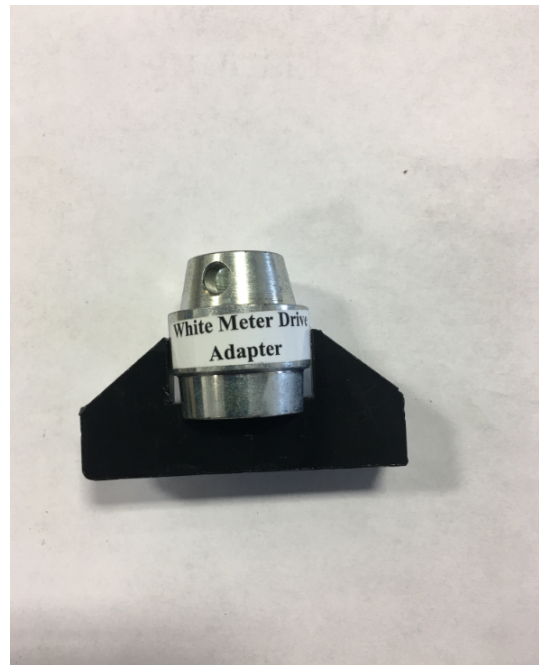
Butterfly Drive Adapter vSet2

Part Number 310332



Step 1:

Using the black adapter and the white meter drive adapter (310007) you will be able to drive vSet 2 with the butterfly drive installed. Install butterfly adapter into white drive adapter.



Step 2:

Install the rest of the vSet 2 brackets as directed in the MMU manual.

Step 3:

Install adapter onto motor drive shaft and install pin.



vDrive Kit

The 310214 vDrive Kit is used to setup the MeterMax Ultra to run meters with vDrive capable products installed.

Parts List:

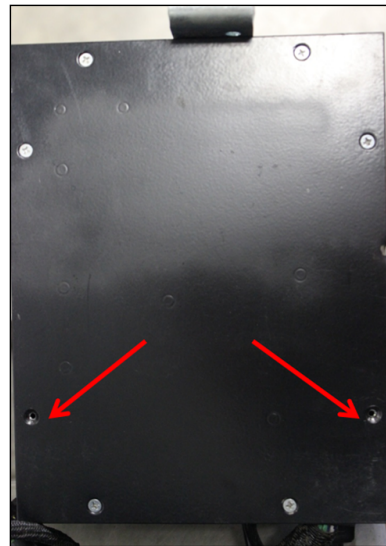
- **310192** vDrive/Ultra Harness (Qty. 1)
- **310193** 12V 5 A Power Supply (Qty. 1)
- **310194** Hanger Bracket (Qty. 1)
- **310195** SRM Mount Plate (Qty. 1)
- **729010** SRM (Qty. 1)
- **33078** 1/4" ZN Plated Washer (Qty. 2)
- **36036** 1/4" ZN Plated Nut (Qty. 1)
- **900116** 14" Black Cable Tie (Qty. 2)



Note: A Gen2 20/20 display will be required to operate vDrive on the MeterMax Ultra. You will need to use 2017.4 software to use vDrive on MeterMax Ultra.

Step 1:

Remove the two lower screws from the back of the MeterMax Ultra Control Panel.

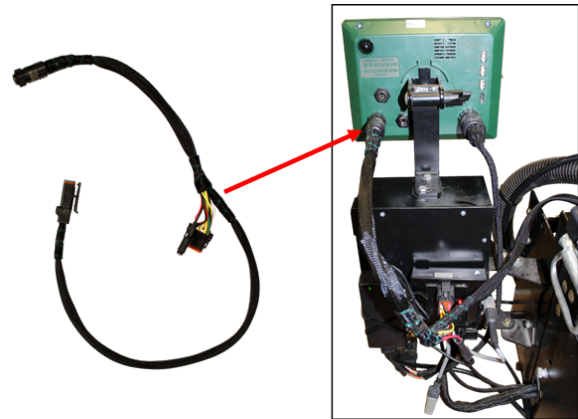


Step 2:

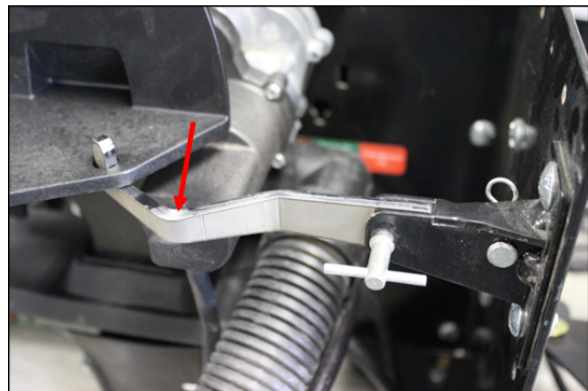
Using the screws removed in step 1, mount the 310195 SRM Mount Plate to the back of the control panel. Now, using the 900116 tip ties, mount the 310193 12V 5A Power Supply to the SRM Mount Plate. Then, slip a 33078 washer over the threaded stud on the plate, mount the 729010 SRM, and secure with the other washer and the 36036 nut.

**Step 3:**

Install the 310192 harness by connecting it to the power supply, the CAN connector on the back of 20/20 display, the SRM, and the vDrive Motor.

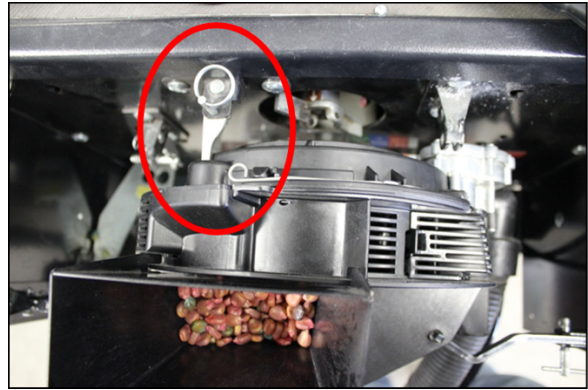
**Step 4:**

If Running vSet classic install the new meter 310194 Hanger Bracket on the right side as shown. The new holder has a bend in it to clear the vDrive motor.

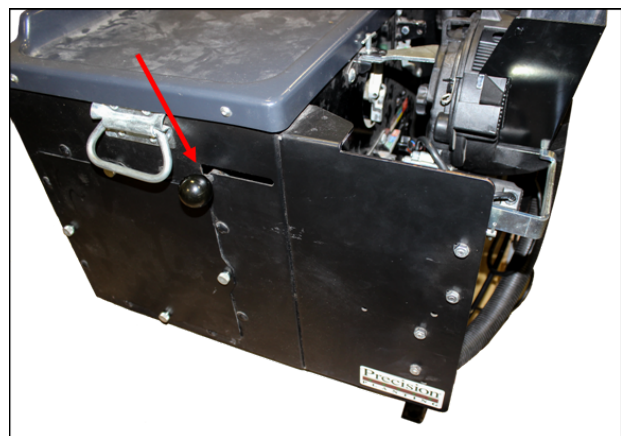
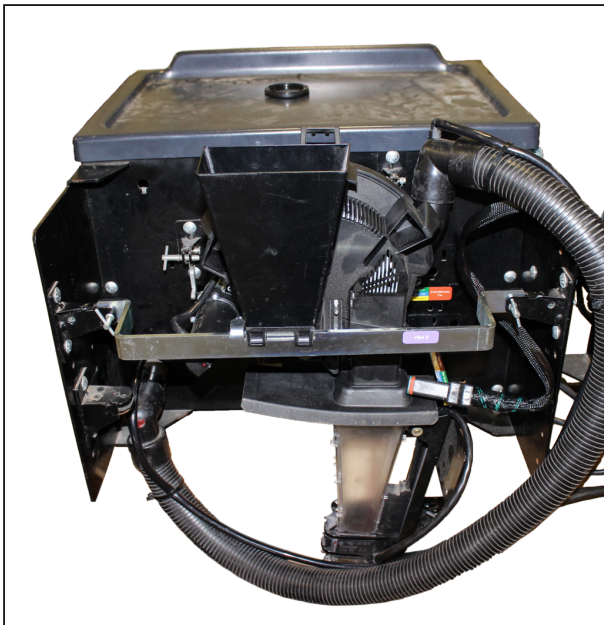


Step 5:

When testing a vSet Classic meter with vDrive, you will need to use the vSet Classic meter stabilizer in the back as shown at right. If running vSet2 install the vset2 kit for MMU 310245.

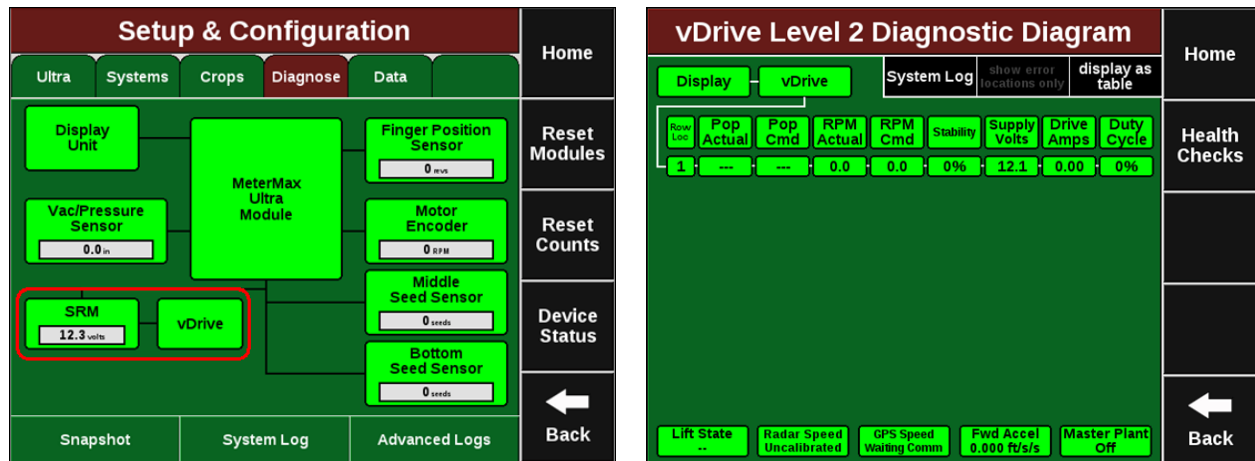


Note: Lock the meter drive in the back position; meter drive will turn when vDrive is running.



Step 6:

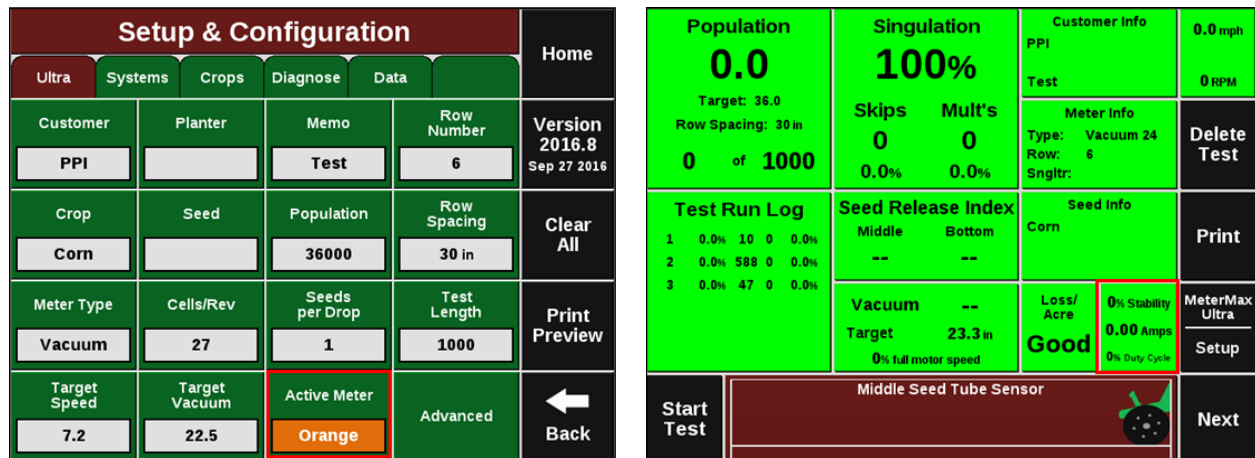
Plug the vDrive into the harness and navigate to the diagnose page to verify the vDrive module starts updating. Once the update is complete, SRM and vDrive should both be green if healthy.



Step 7:

After vDrive is plugged in, new settings will be available on the Ultra tab. “Active Meter” should be set to “ORANGE” to operate a single vDrive. On the home screen, torque will not be shown and new box displaying % stability, amps, and % duty cycle will be added.

Note: You will not see Pop Actual, Pop Cmd, RPM Actual and RPM Cmd on vDrive level 2 Diagnostic Diagram.

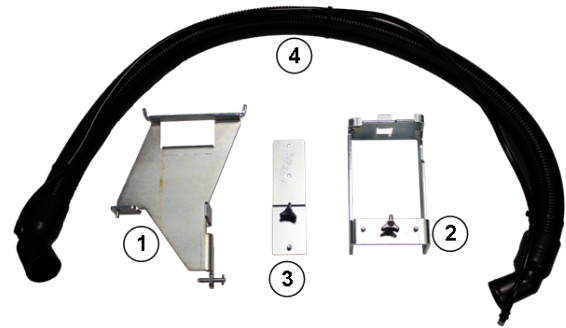


vSet Select Kit

The 310270 vSet Select Kit is used to mount both the seed tube and vSet Select meters to the MeterMax Ultra Test Stand.

Parts List:

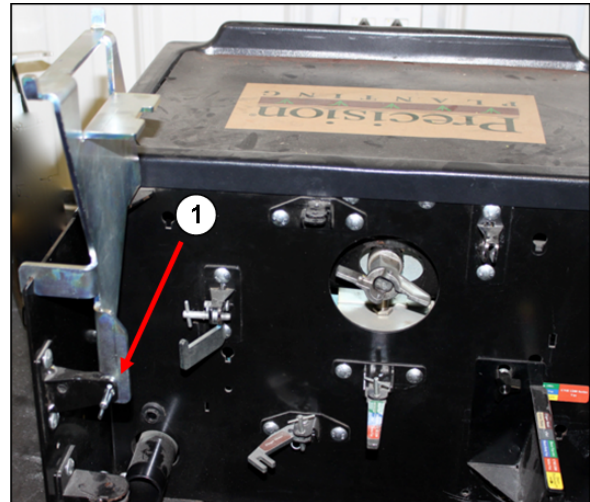
- **310086** Pin (Qty. 1)
- **310105** Knob (Qty. 2)
- **310260** Front Mount (Qty. 1)
- **310264** Seed tube riser (Qty. 1)
- **310265** Rear Mount (Qty. 1)
- **310330** 1.5 Hose (Qty. 1)



Note: vSet Select will require 310214 vDrive Kit Installation to be able to run the meters.

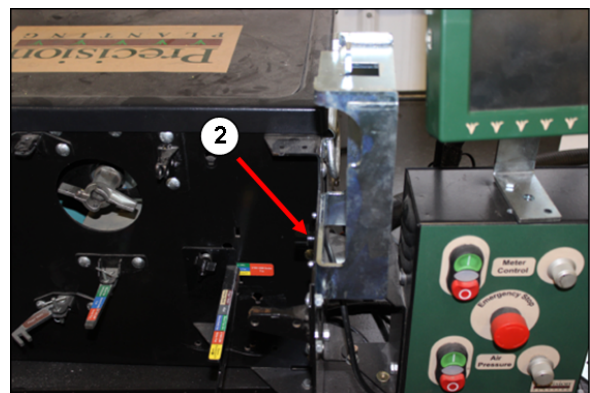
Step 1:

Install rear mount on the left side of the ultra stand.



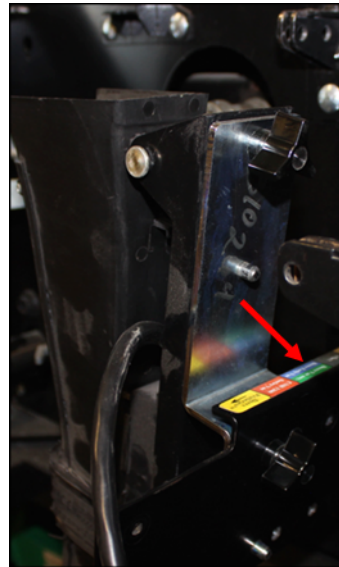
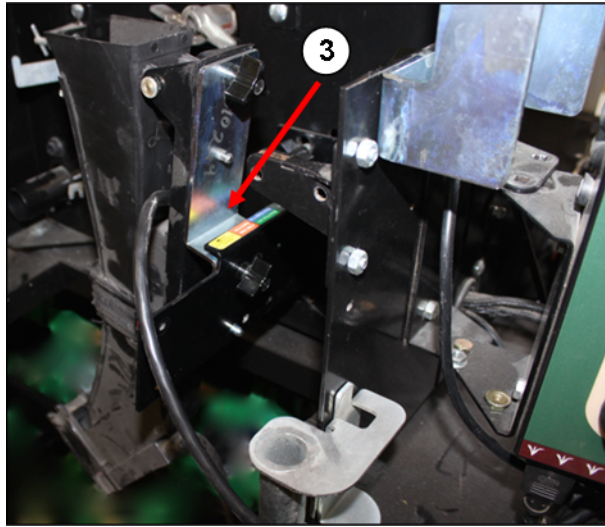
Step 2:

Install front mount on the right side of the ultra stand.

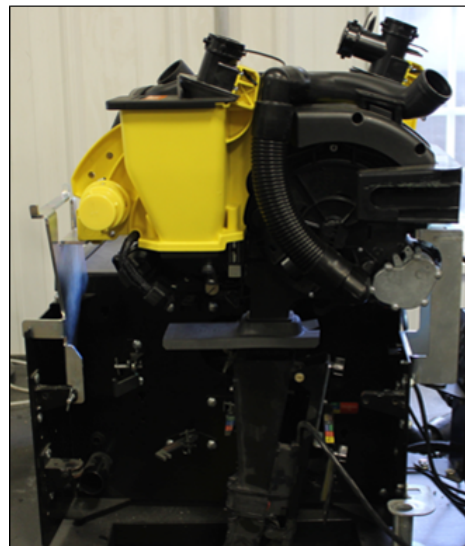


Step 3:

Install the seed tube riser in the Deere position.

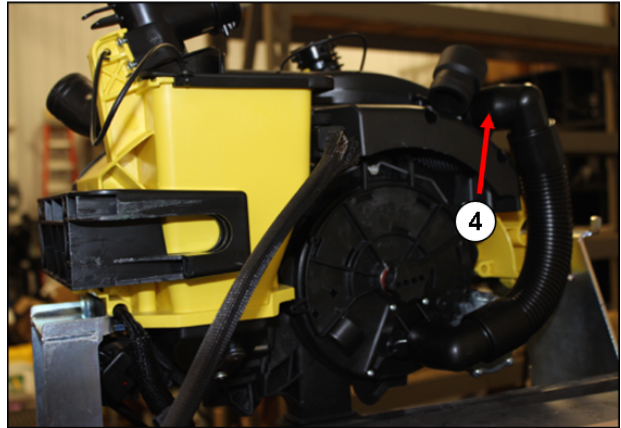
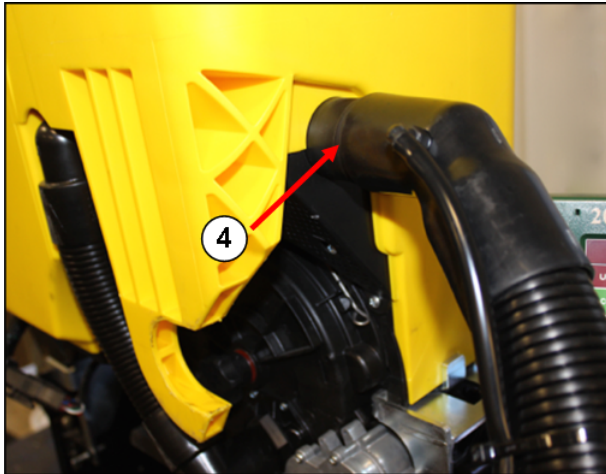


vSet Select Kit will work with both 1.9bu box as well with Precision mini hoppers.



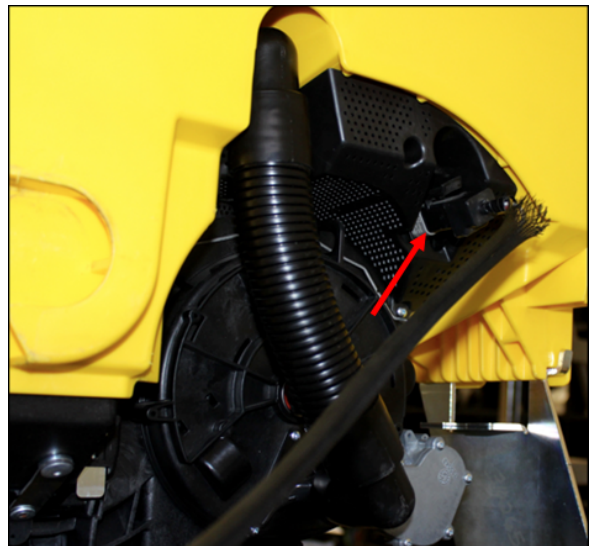
Step 4:

Install new vac hose with 1.5" fitting onto hopper.



Step 5:

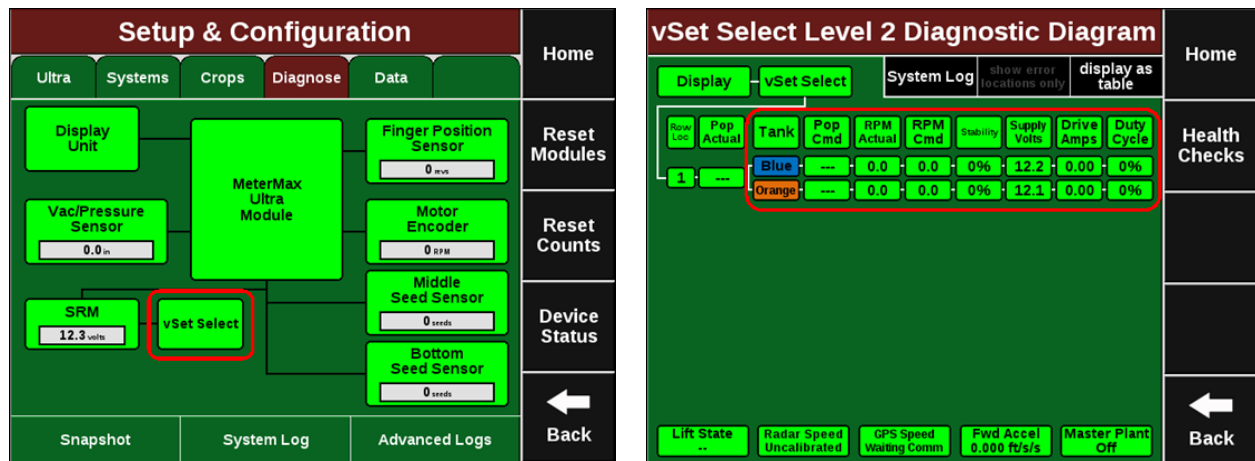
Install vDrive harness into the central plug on the hopper.



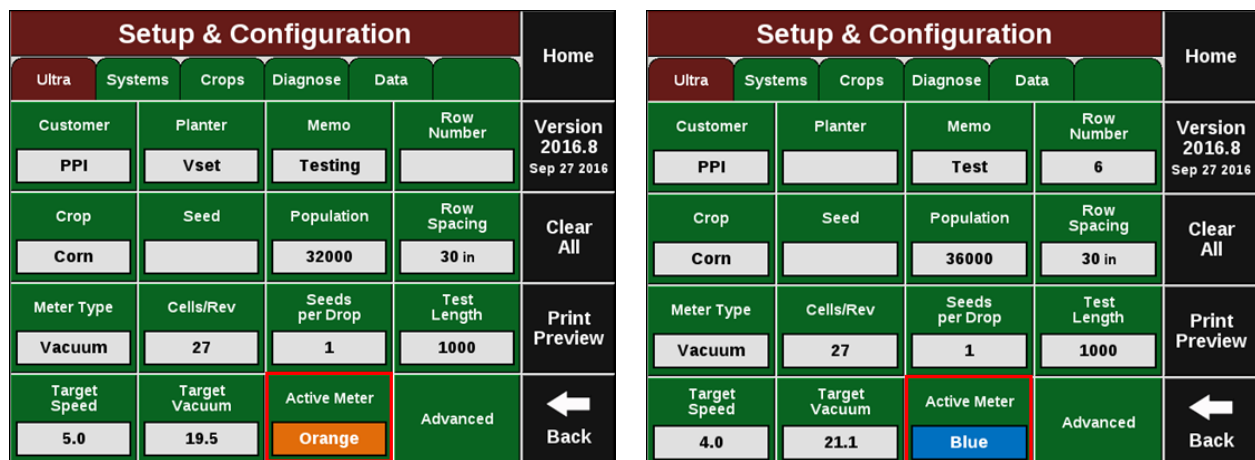
Step 6:

Once you have installed harness vSet Select will appear on diagnose page. Verify that that vSet Select is showing and that it is green.

Level 2 diagnostic page will show you what Actual RPM Cmd RPM, Stability, Drive AMPS, supply volts and Duty cycle is for both Blue and Orange Meters .



Under setup and configuration you can change meter from orange to blue.



SpeedTube Kit

The 310340 SpeedTube Kit is used to mount the vSet 2 meters with SpeedTube to the MeterMax Ultra Test Stand.

Parts List:

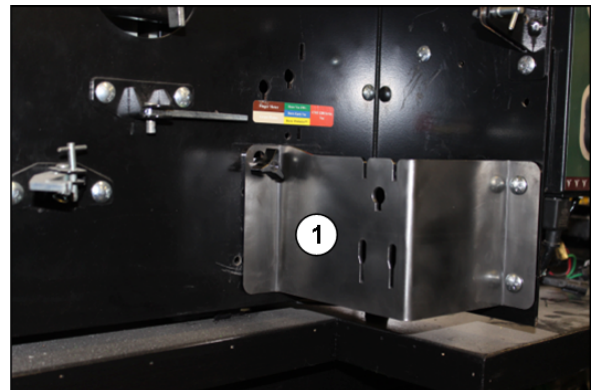
- **310083** 1/4-20 x 0.5" Bolt (Qty. 2)
- **310104** 10-24 x 0.5" Bolt (Qty. 2)
- **310105** Knob (Qty. 2)
- **310317** Lower Frame (Qty. 1)
- **310324** Rear Meter Support (Qty. 1)
- **310338** Wing Nut (Qty. 2)
- **310339** Shoe Assembly (Qty. 1)
- **729287** Harness (Qty. 1)



Note: SpeedTube Kit will require 310214 vDrive Kit Installation to be able to run the meters.

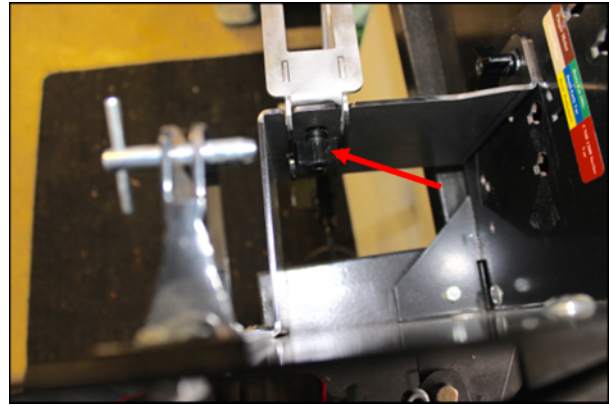
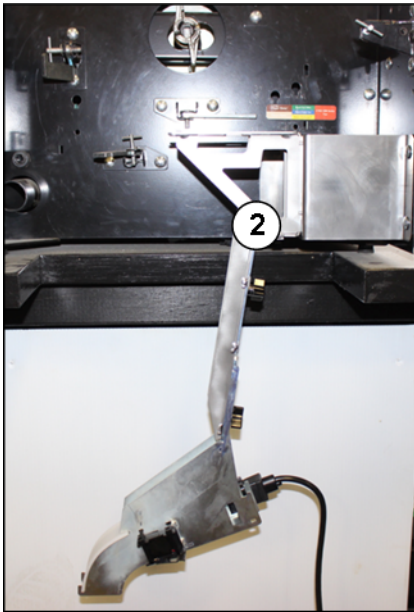
Step 1:

First install lower frame to the right hand side of the Meter Max Ultra.



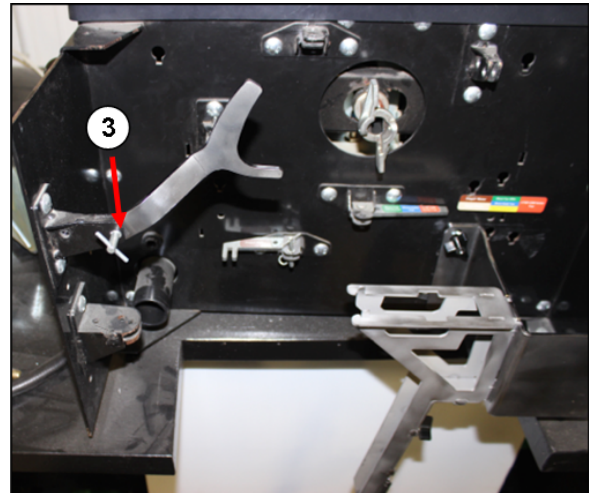
Step 2:

Next install the shoe assembly onto the lower frame mount. Tighten together using carriage bolt knob in kit.



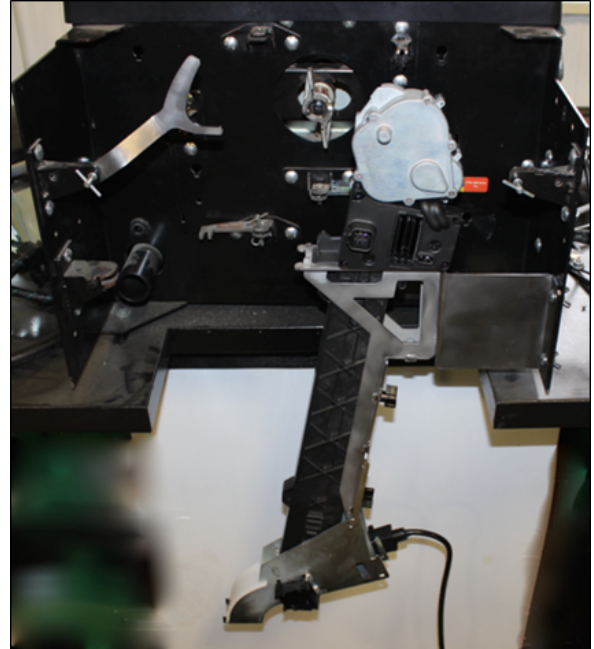
Step 3:

Install the rear meter support using the upper left hand mount and pin in place using outer hole, allowing bracket to pivot up and down. Once meter is installed, insert another pin in rear hole, locking meter in place.



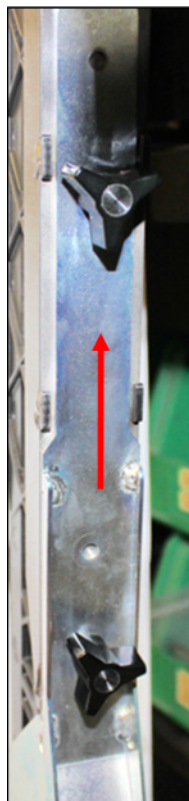
Step 4:

Install the SpeedTube first.



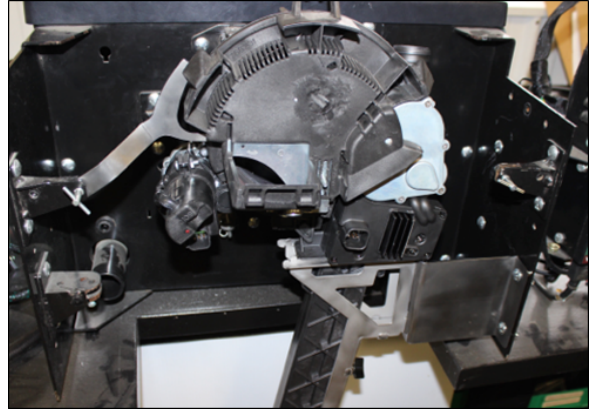
Note: If one is running SpeedTube for a Case 2000, the lower bracket will need to be extended to accommodate the longer tube.

Picture on the left is standard SpeedTube mounting. The picture on the right shows bracket lowered when testing Case 2000 SpeedTube.

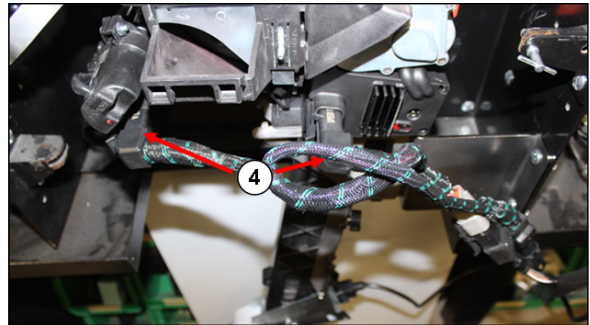


Step 5:

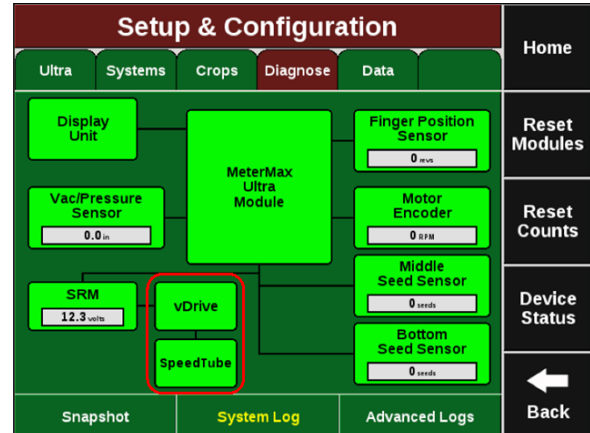
Install meter and use meter bracket to stabilize meter when testing.

**Step 6:**

Connect SpeedTube harness to vDrive harness on Meter Max Ultra.



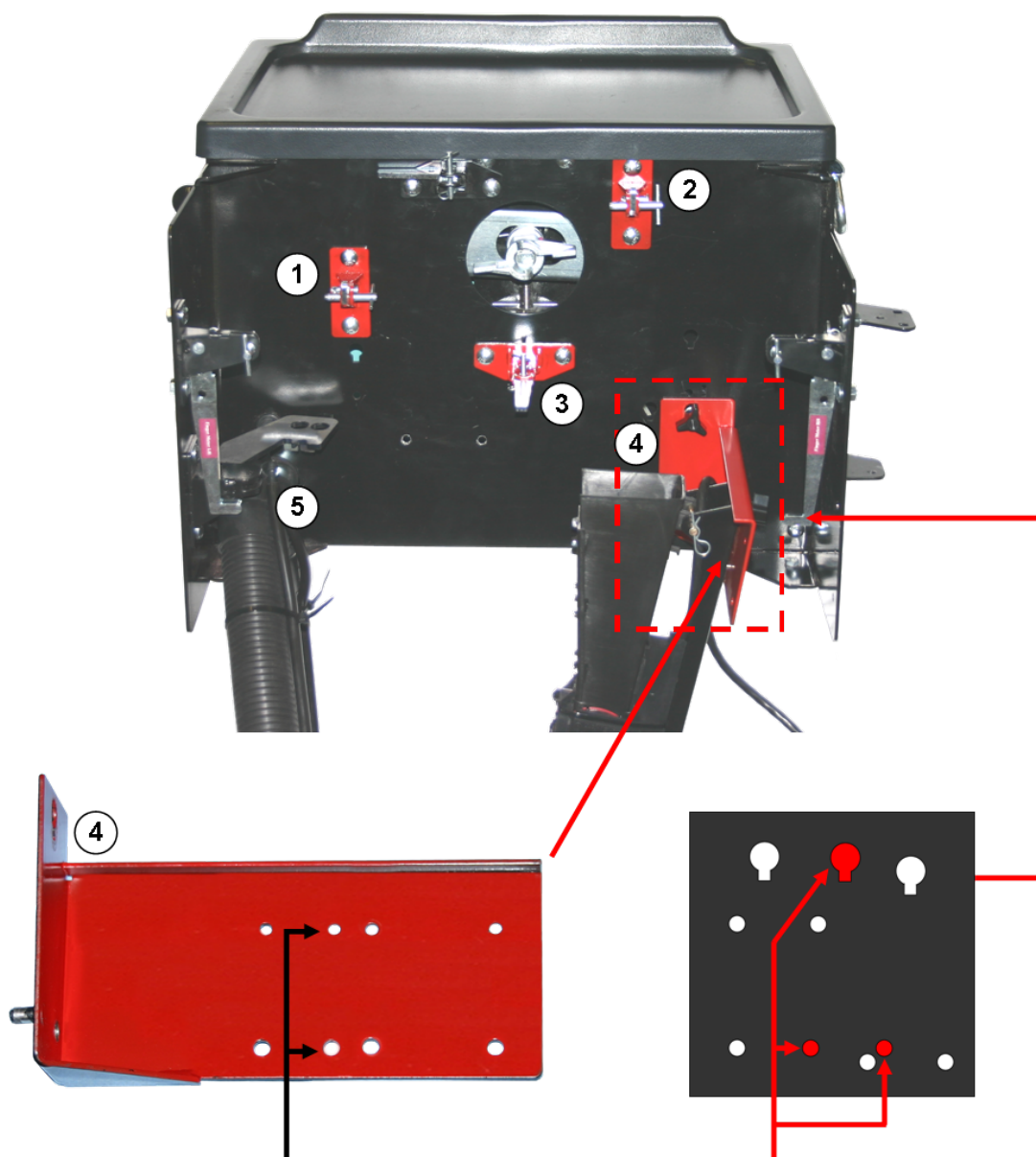
Verify that vDrive and Speedtube appear in green on diagnose page.



Vacuum Meter

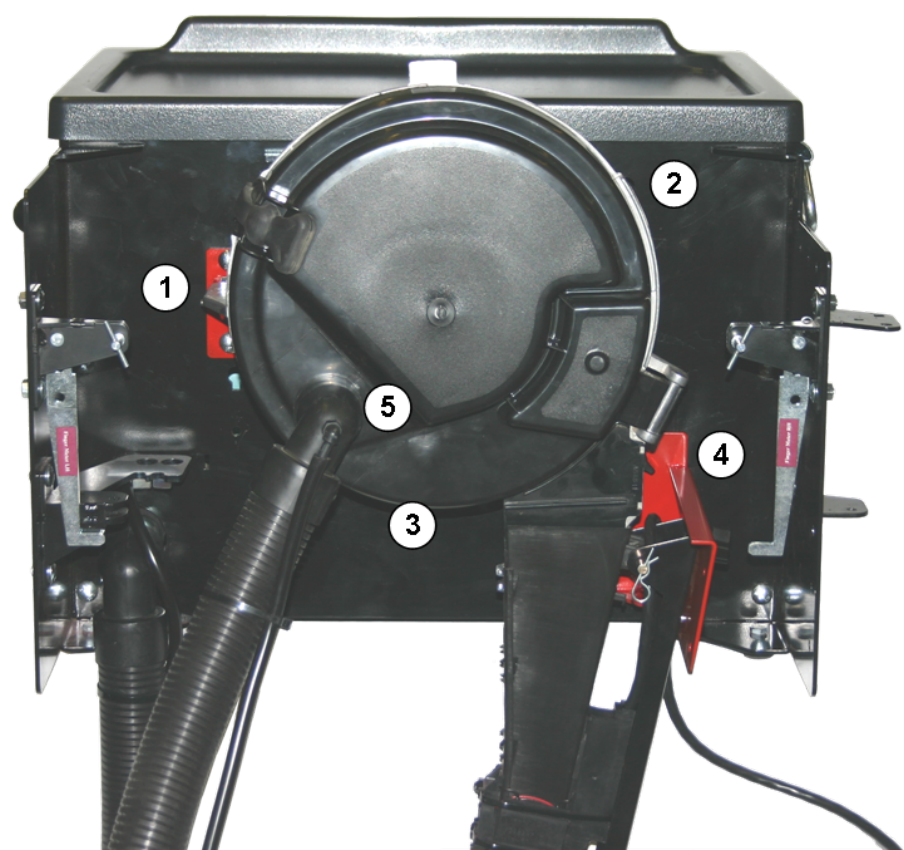
The Brackets shown in red are used to mount a Vacuum meter on the MeterMax Ultra.

1. Raise the left hand vacuum meter hanger in the up position and insert pin to lock in place.
2. Raise the right hand vacuum meter hanger in the up position and insert pin to lock in place.
3. Swing rear lower meter support arm out toward meter and insert pin to lock in place.
4. The seed tube mount will use the holes shown above and the top pin will be secured by a nut. The Seed Tube Bracket will go into the middle slots as shown above, and the top slot will be secured with a bolt and nut.
5. Attach the Vacuum Hose.



Note: For vacuum meters pre 1991 you will use the same brackets but different hangers. Look for the hangers labeled Pre 1991. For

Below shows the Vacuum meter correctly mounted on the MeterMax Ultra Test Stand.



Post 1991 Vac Meter



Item Number	Part Number
1	310025
2	310025
3	310046

Pre 1991 Vac Meter



Item Number	Part Number
1	310128
2	310129
3	310046

1. The left bracket arm secures the left side of the meter.
2. The right bracket arm secures the right side of the meter.
3. The lower meter support keeps the Meter from wobbling forward and backward.
4. The Seed Tube Bracket Mount Holds the seed tube in position.
5. Attach the Vacuum hose to the Meter Lid.

Suggested Operating Parameters

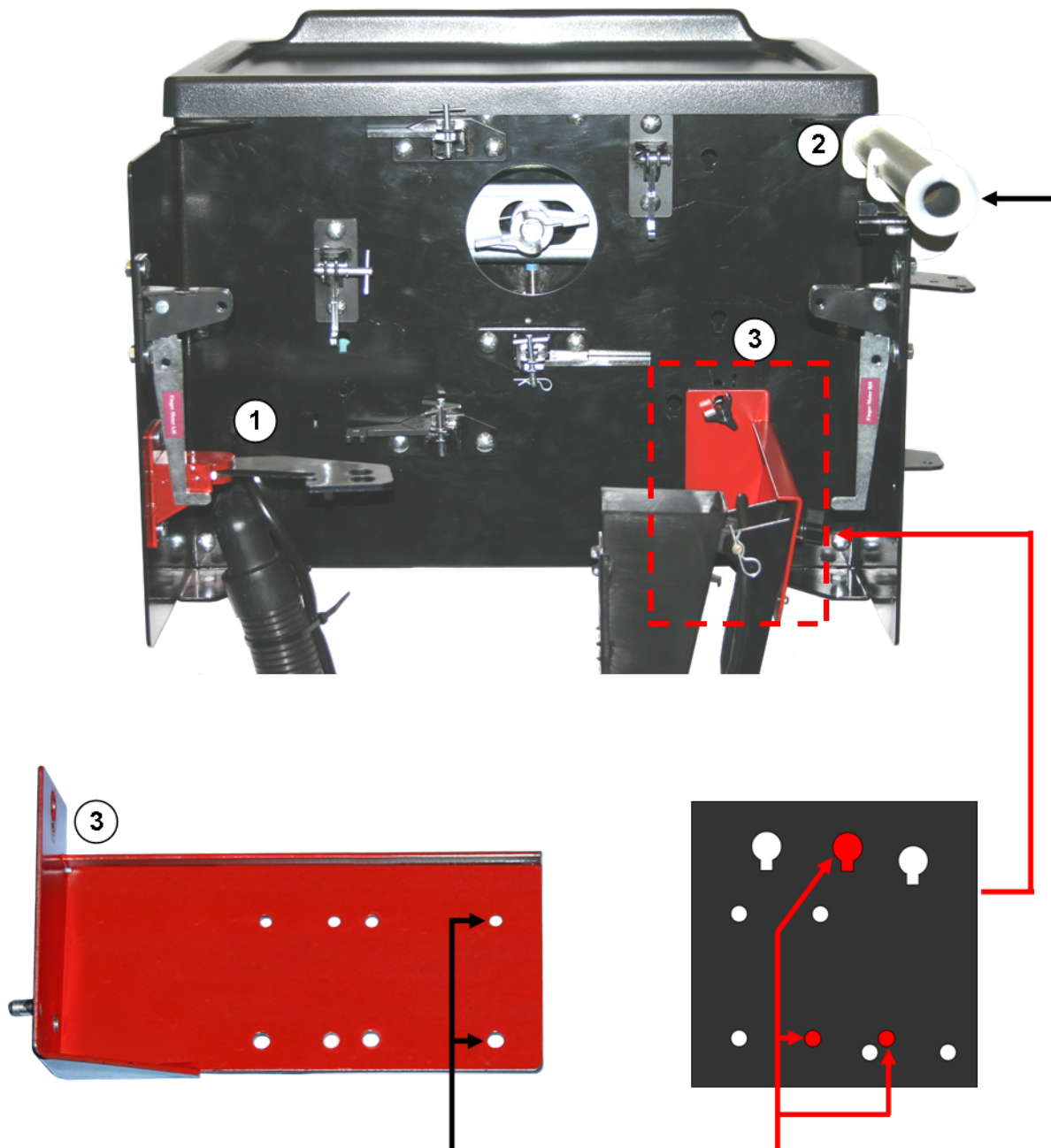
Torque — 15–25 inch lbs.

Maximum RPMs — 100

Pro Series Vacuum Meter

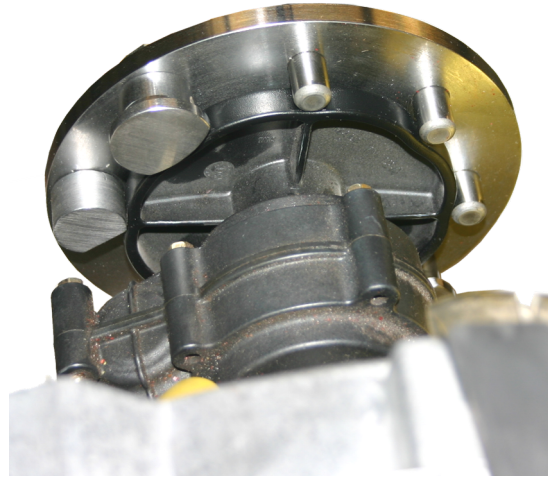
Bracket kit 310165 is used to mount a Pro Series Vacuum meter on the MeterMax Ultra.

1. Swing out the left hand pro series vacuum meter hanger and insert pin to lock in place.
2. Raise the pro series vacuum hopper support and secure in place with nut.
3. The seed tube mount will use the holes shown and the top pin will be secured by a nut. The Seed Tube Bracket will go into the middle slots as shown, and the top slot will be secured with a bolt and nut.

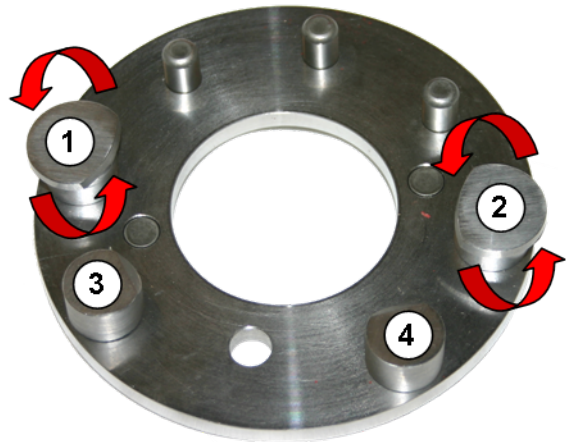


Attaching the Drive Adapter to the Drive Handle.

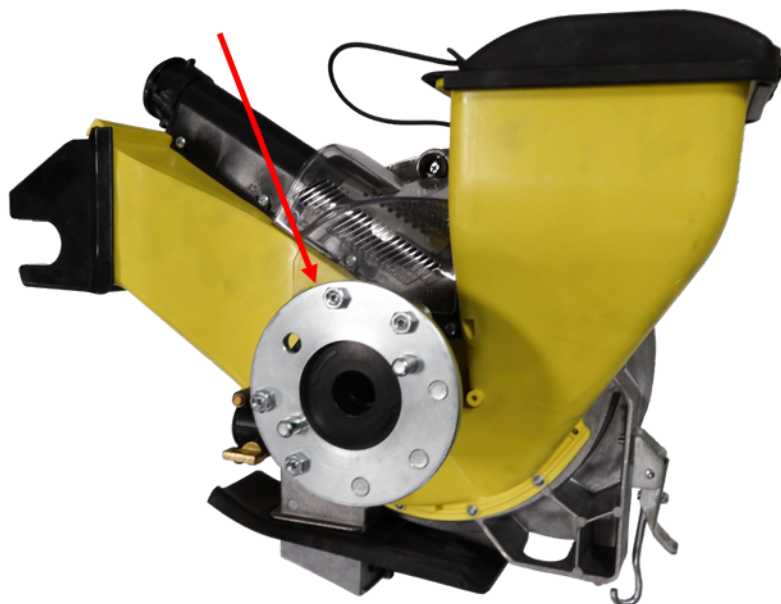
The ProSeries Drive Adapter (310242) secures to the drive handle. The pegs are used to line up and center the adapter to the handle.



Once you have lined up the drive adapter to the drive handle twist knobs 1 & 2 till they tighten and hold the drive adapter to the handle. Use knobs 3 & 4 to apply pressure to the drive handle against the drive adapter's three pegs.



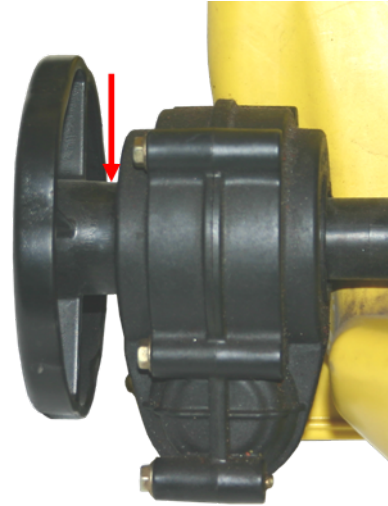
Mount the drive adapter to the Pro Series Meter.



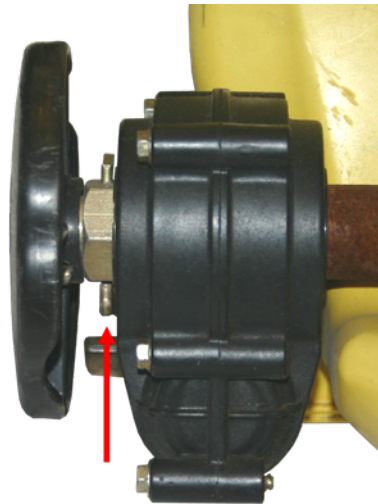
On the newer (2004+) Pro Series meters the hand rotating drive is secured with a snap on rotating knob.

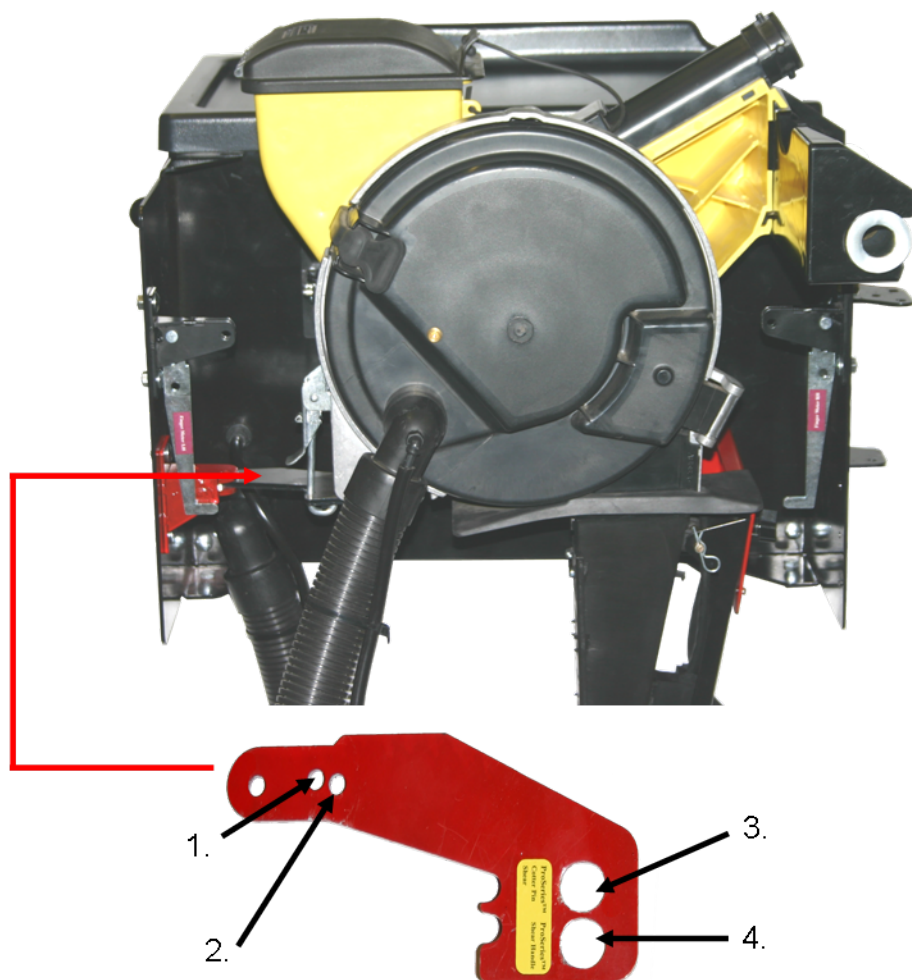
On the older style (-2004) Pro Series meters the rotating knob is secured with a cotter pin.

Newer (2004+) Style ProSeries Meter. Note how there is no pin securing the knob.



Older (-2004) Style ProSeries Meter. Note how there is a pin securing the knob.





1. Older Style Meter (-2004)
2. Newer Style Meter (2004+)
3. Newer Style Meter (2004+)
4. Older Style Meter (-2004)

The bracket hanger (310157) has two holes, one for the newer style meter and one for the older style meter.

See the previous page to see how to differentiate between the two styles.

Once you have the meter centered and in position, clamp it down so it will be locked in position.

Run in Vac Mode

ME5 Vacuum Meter

Use kit 310219 to fit an ME5 Vacuum Meter to the MeterMax Ultra Test Stand.

Parts List:

- **310020** Meter Support Arm (Qty. 2)
- **310243** Lower Meter Support Bracket (Qty. 1)

Note: If the meter has a Pro Shaft handle, use the 310242 Pro Series drive adapter to drive the meter. If the meter has a butterfly drive, use the standard vacuum meter bracket arms (310025 and 310046) instead of the arms included in kit 310219.

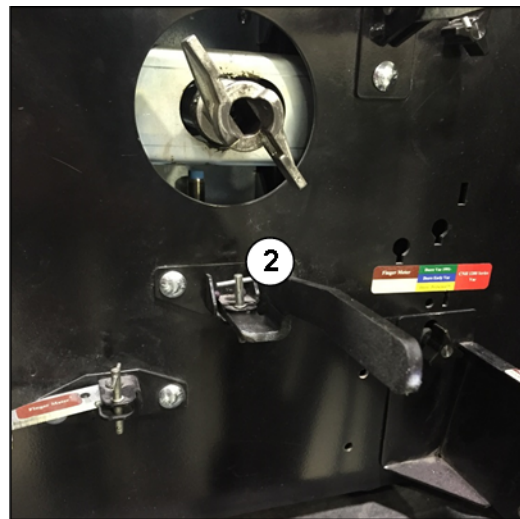
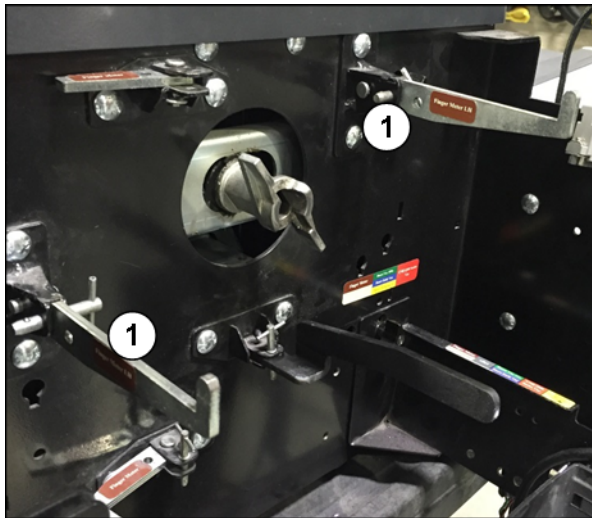


Step 1:

Remove the ME5 hopper from the meter to mount on the test stand.

Step 2:

Install the 310020 Meter Support Arms in the positions shown and install the 310243 Lower Support Bracket into the forward position.



Step 3:

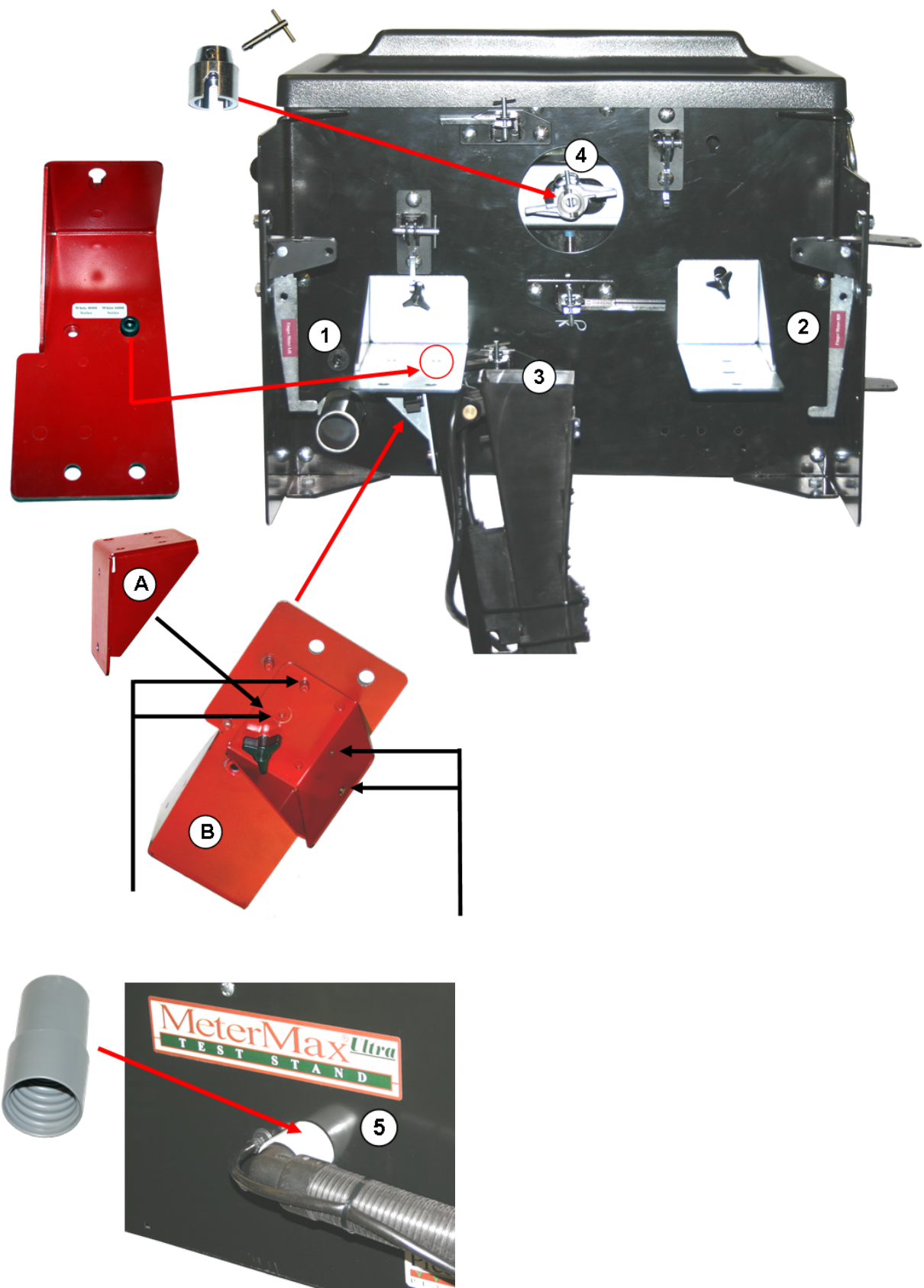
Move the seed tube to the “Pro Series” position as shown. The ME5 meter may now be tested.



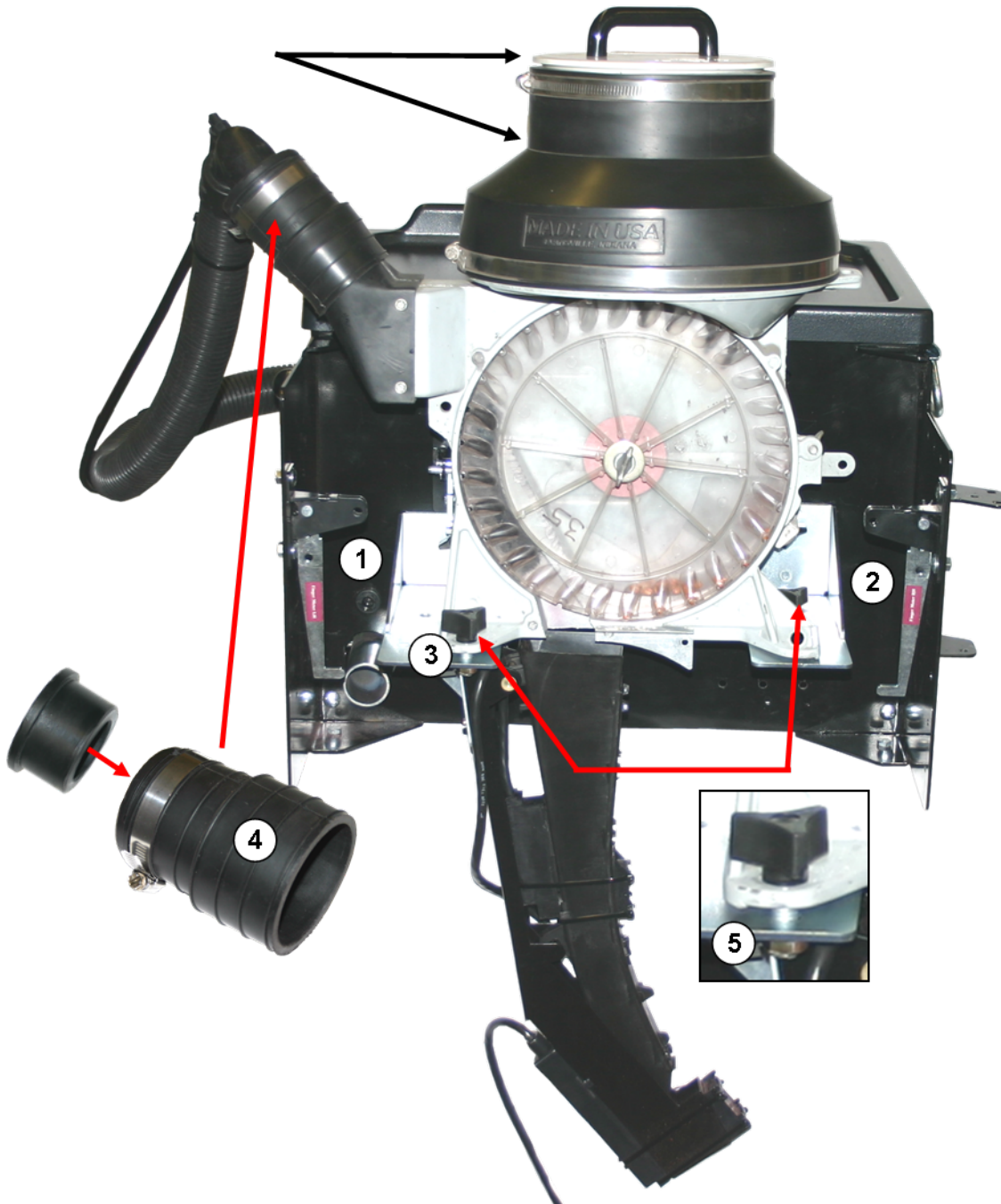
White 6000

Use kit 310210 to mount a White 6000 meter on the MeterMax Ultra.

1. Mount the left White bracket and secure in place with the nut and bolt. Insert Allen screw to the right for 6000. Attach bracket A to bracket B as shown using a twist nut.
2. Mount the right White bracket and secure in place with nut and bolt.
3. Mount the seed tube and bracket to the bottom of the left meter bracket and secure with nut.
4. Add the White drive adapter (310007) to run the White meter (meter rotates counterclockwise). Secure with pin as shown.
5. Attach vacuum hose to port located at the back of the MeterMax Ultra. Use the vacuum hose extension for a secure connection.



White Unit, Teapot and lid sold separately. Part Number 300167



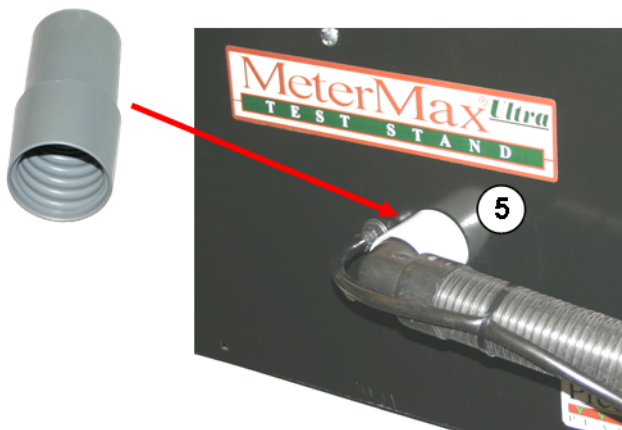
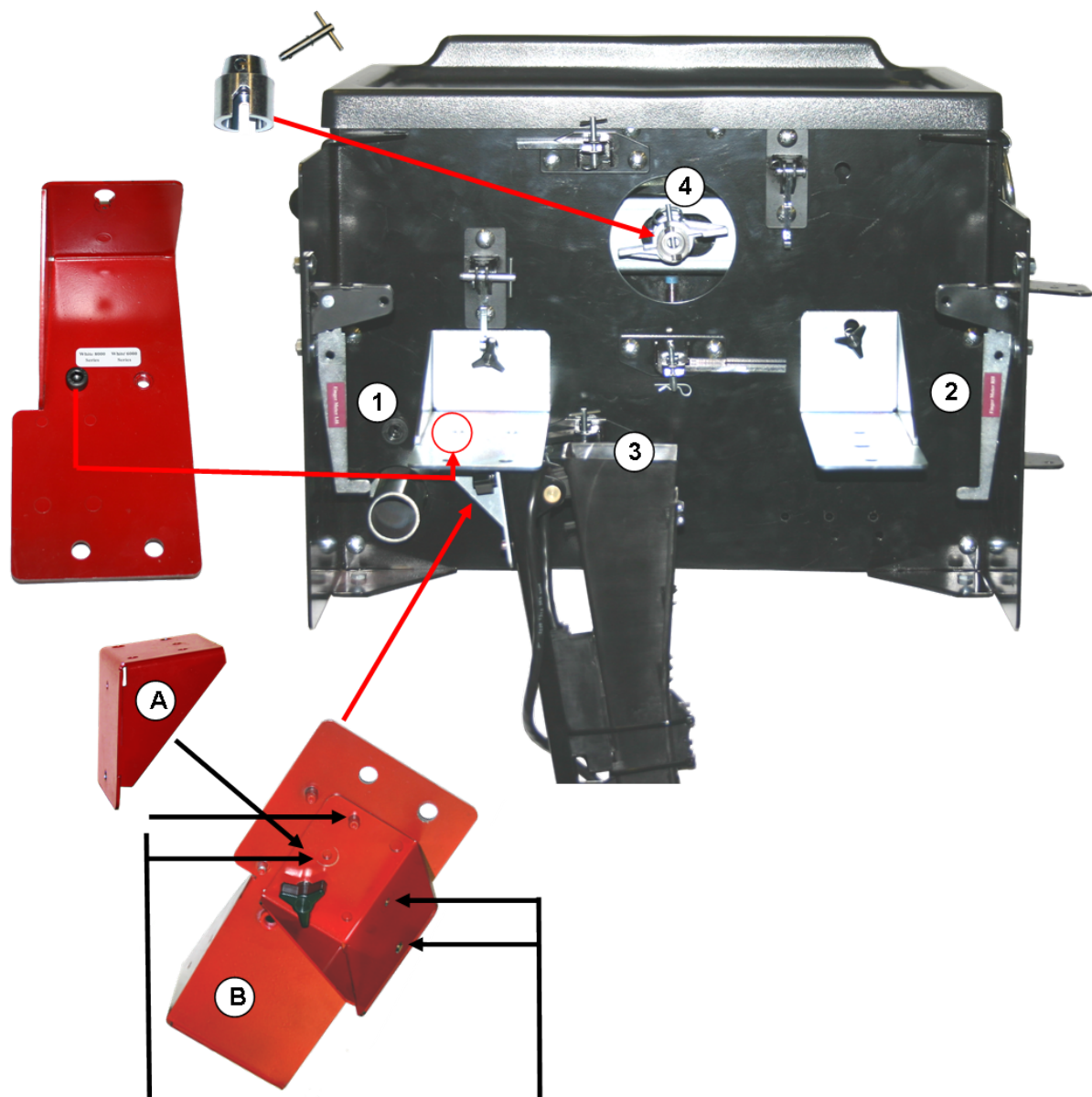
1. The left bracket arm secures the left side of the meter.
2. The right bracket arm secures the right side of the meter.
3. The Seed Tube Bracket Mount Holds the seed tube in position.
4. Attach this hose adapter to the White meter. Then plug the hose end into the adapter.
5. Secure the meter to the plated brackets with 2 bolts and 2 quick nuts provided.

On the 20/20 change the meter type to White by selecting setup, Ultra, Meter Type, White.

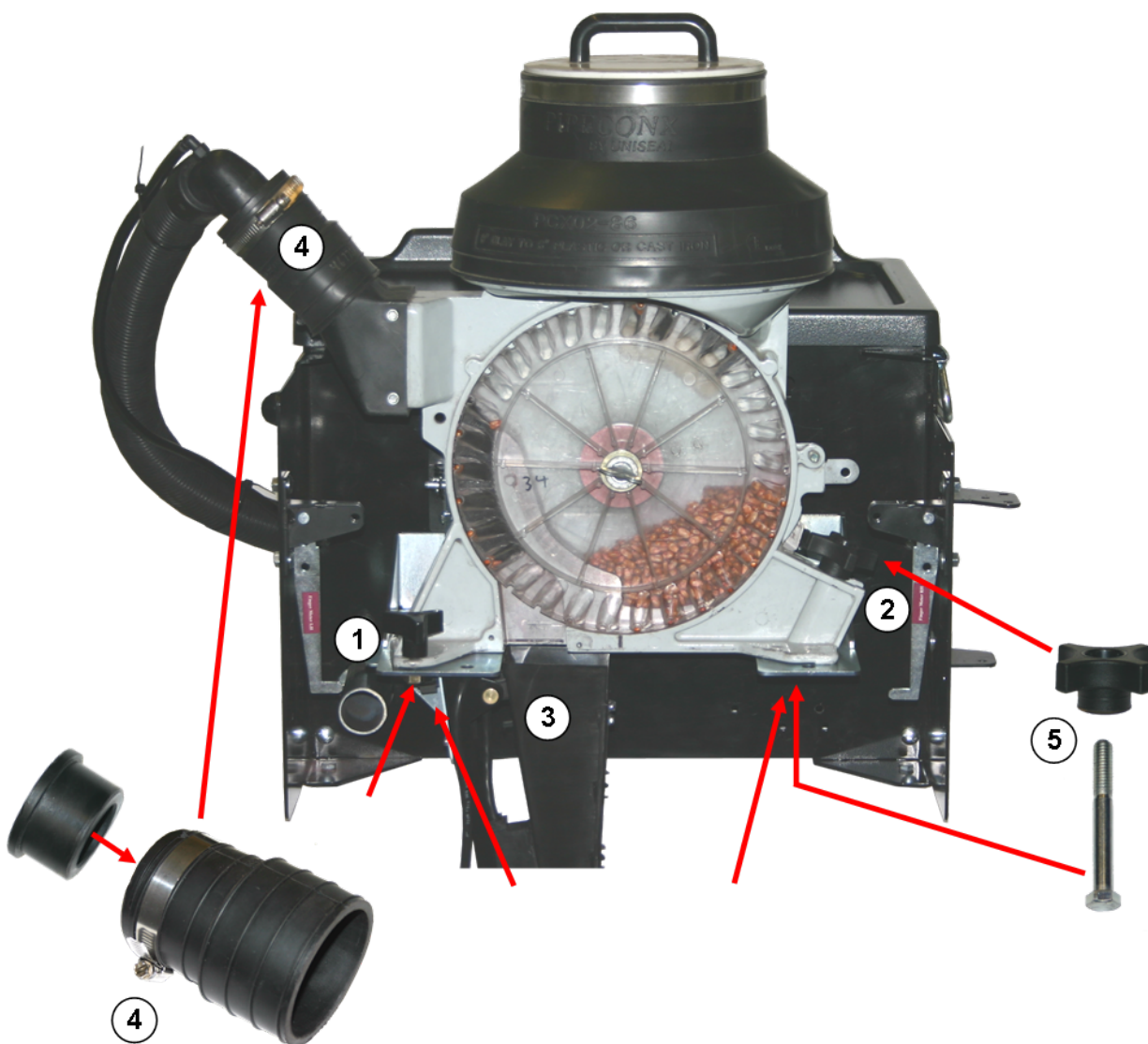
White 8000

Use kit 310210 to mount a White 8000 meter on the MeterMax Ultra.

1. Mount the left White bracket and secure in place with nut and bolt. Insert Allen screw to the left for 8000. Attach bracket A to bracket B as shown using a twist nut.
2. Mount the right White bracket and secure in place with nut and bolt.
3. Mount the seed tube and bracket to the bottom of the left meter bracket and secure with nut.
4. Add the White drive adapter (310007) to run the White meter (meter rotates counterclockwise). Secure with pin as shown.
5. Attach vacuum hose to port located at the back of the MeterMax Ultra. Use the vacuum hose extension for a secure connection.



White unit, teapot, and lid sold separately. Part number 300167.



1. The left bracket arm secures the left side of the meter.
2. The right bracket arm secures the right side of the meter.
3. The Seed Tube Bracket Mount Holds the seed tube in position.
4. Attach vacuum hose adapter to the White meter. Then plug the hose end into the adapter.
5. Secure the meter to the plated brackets with bolts and nuts provided.

On the 20/20 change the meter type to White by selecting setup, Ultra, Meter Type, White.

White 9000

Use kit 310216 to fit an White 9000 Meter to the MeterMax Ultra Test Stand. Will need to use the white drive adapter (310007) and vacuum fittings that were used for the White 6000/8000 meter.

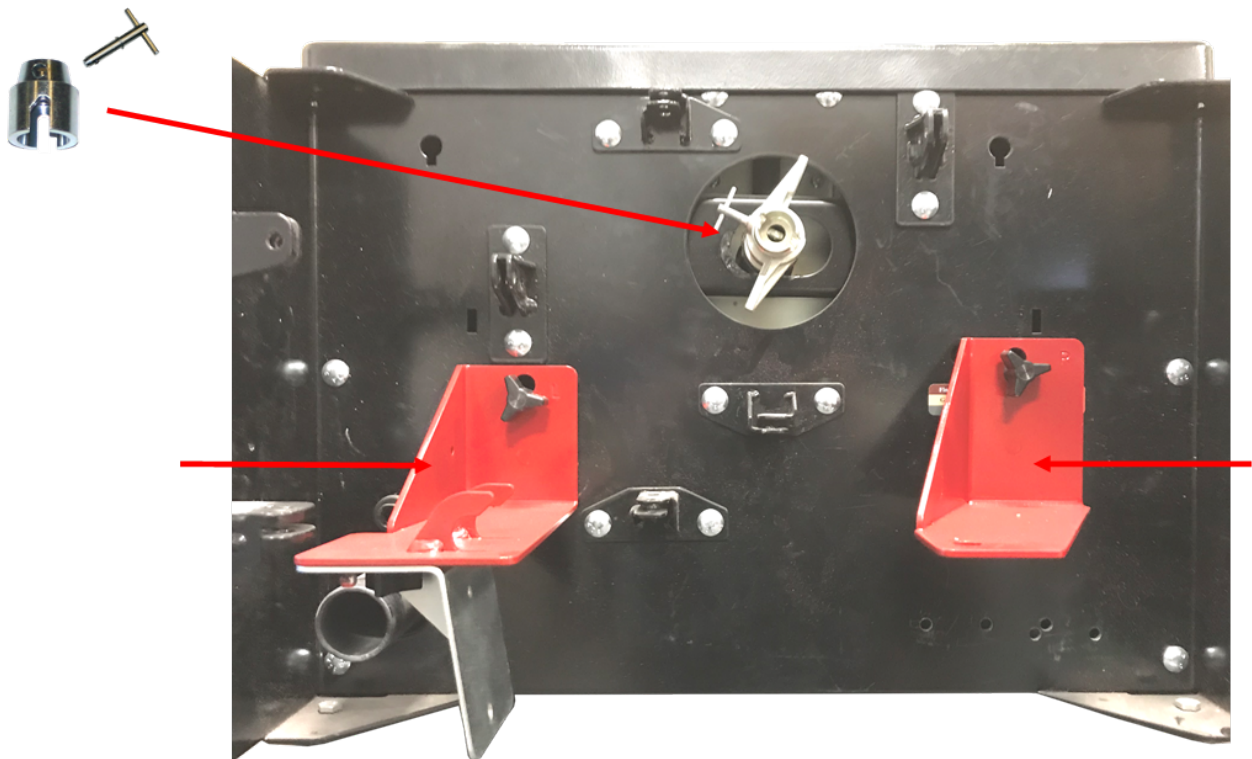
Parts List:

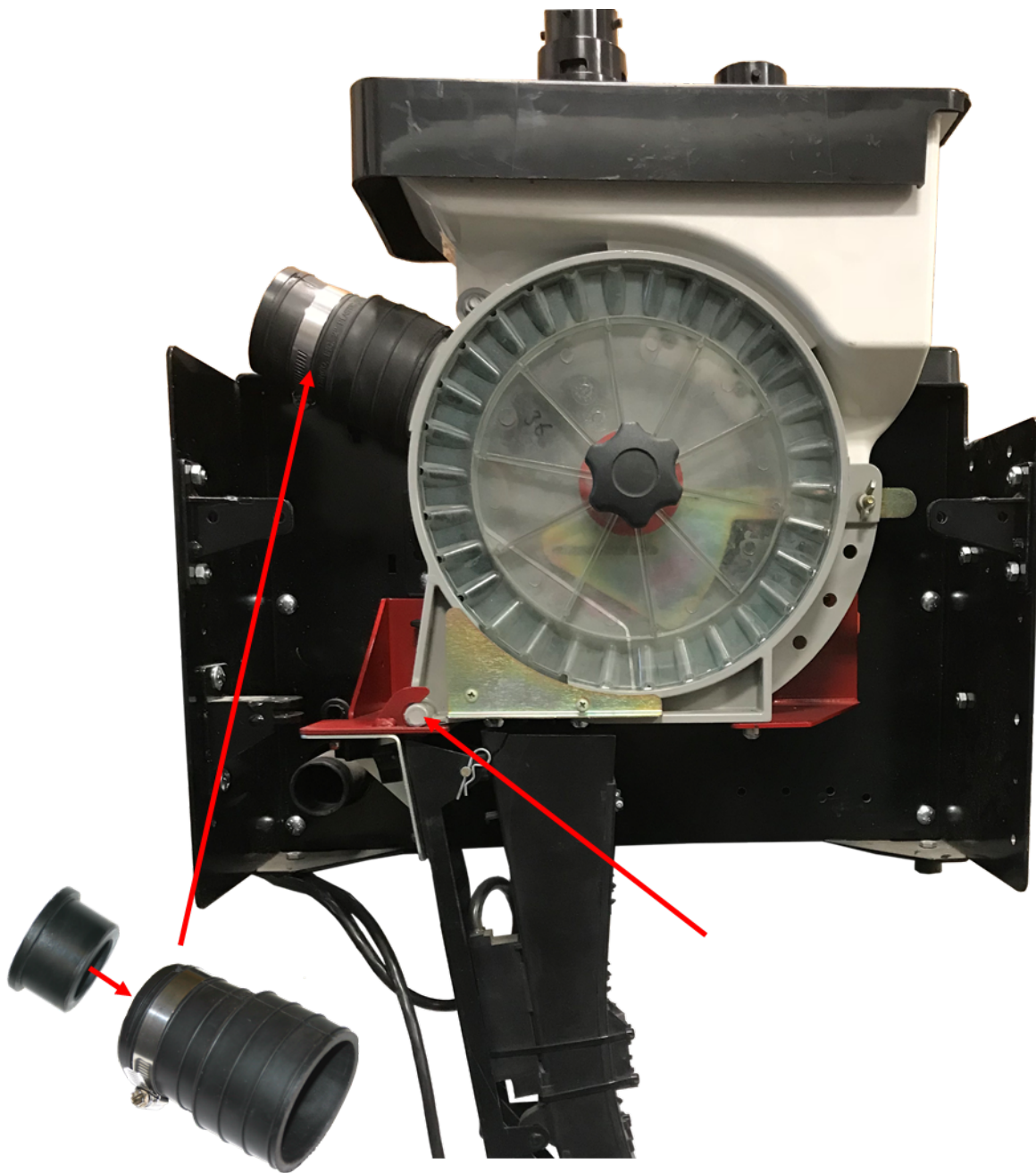
- Left Meter Support Bracket (Qty. 1)
- Right Meter Support Bracket (Qty. 1)

Left Bracket



Right Bracket





Attach the hose adapter to the White meter. Then plug the hose end into the adapter.

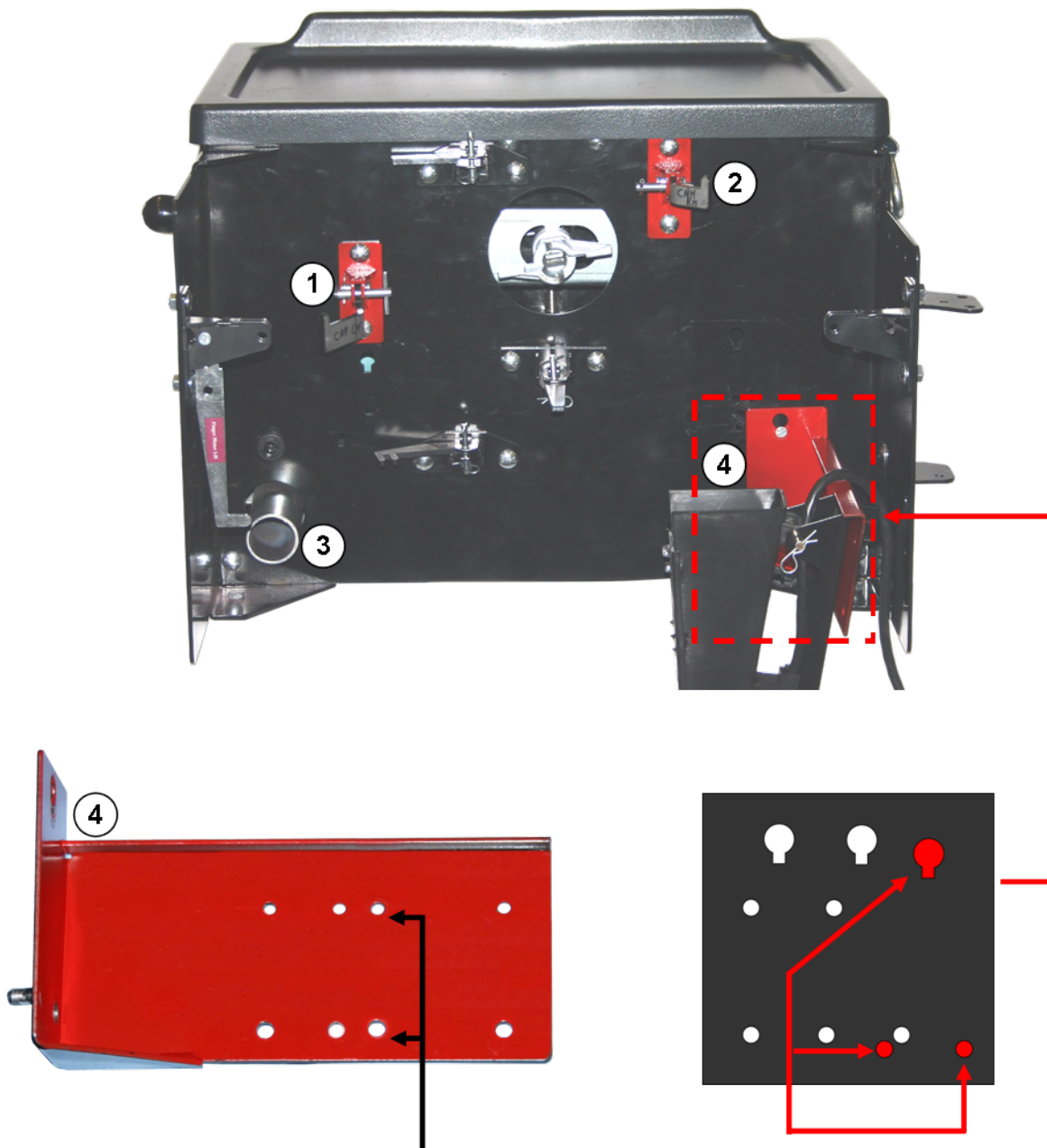
Secure the meter to the brackets.

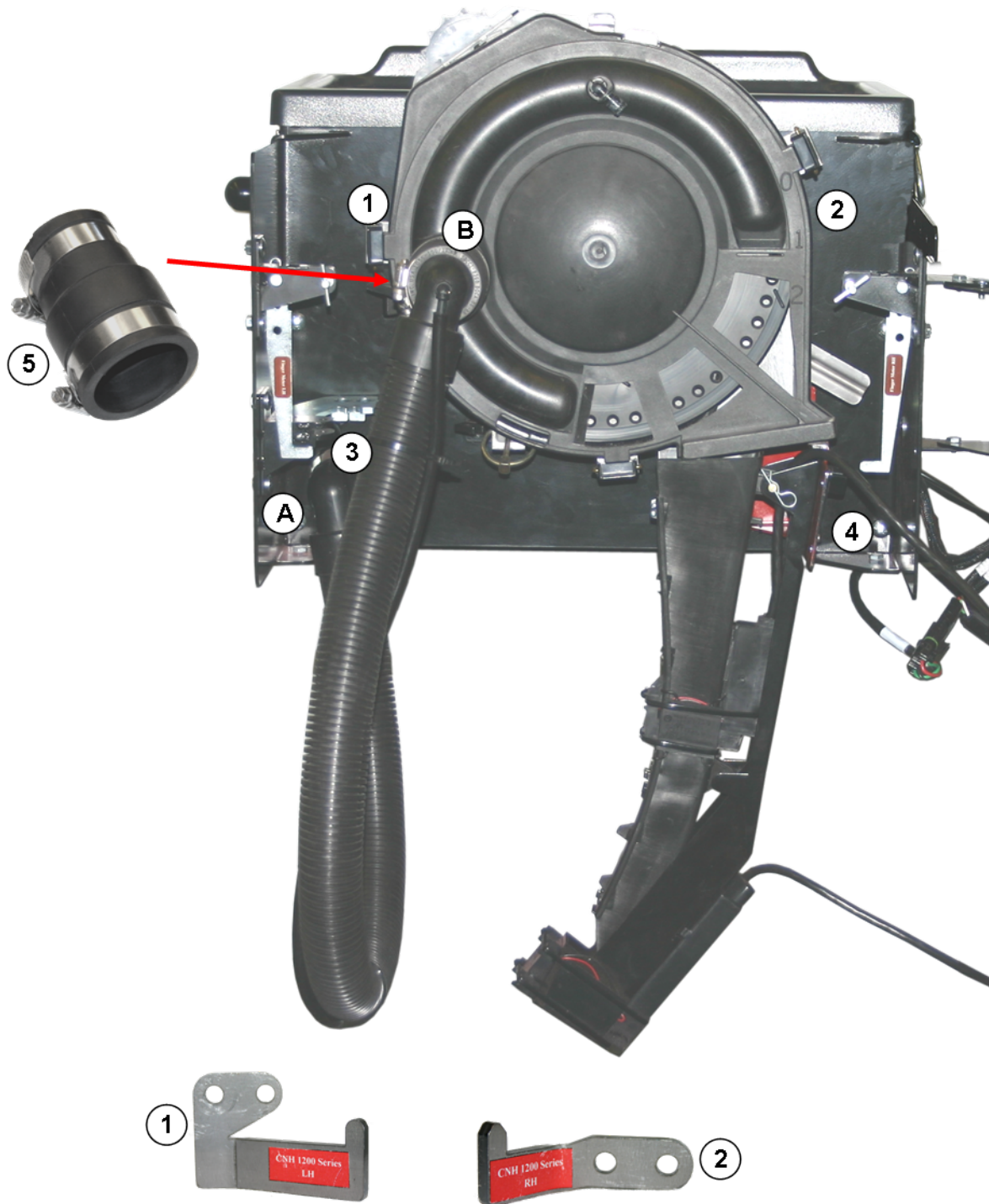
On the 20/20 change the meter type to White by selecting setup, Ultra, Meter Type, White.

Case 1200

The Brackets shown in red are used to mount a Case 1200 Series Vacuum meter on the MeterMax Ultra. The Case 1200 series meter arms are shown on the following page.

1. Swing out the left hand Case meter hanger (310126) and insert pin to lock in place.
2. Swing out the right hand Case meter hanger (310127) and insert pin to lock in place.
3. Attach the vacuum hose.
4. Mount the seed tube bracket in the farthest right slots as shown. The top slot will be secured with a bolt and nut.



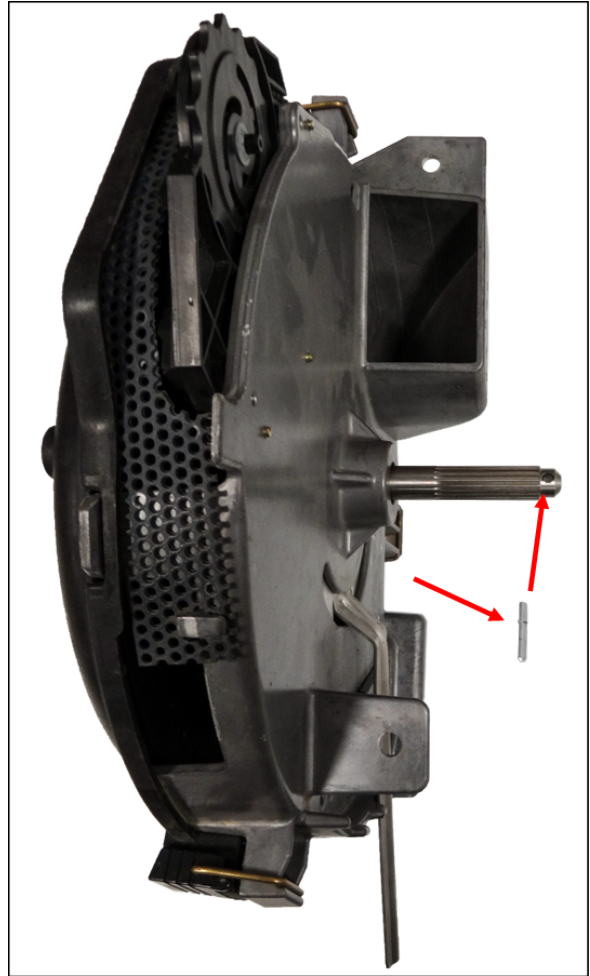


1. The left bracket arm (310126) secures the left side of the meter.
2. The right bracket arm (310127) secures the right side of the meter.
3. Connect the vacuum hose from point A to Point B.
4. The seed tube bracket holds the seed tube in position.
5. Use this vacuum adapter to attach the vacuum hose to the meter.

Case ASM Meter with Cable Drive

Remove cable drive from meter, install drive pin 310197 into the end of meter shaft.

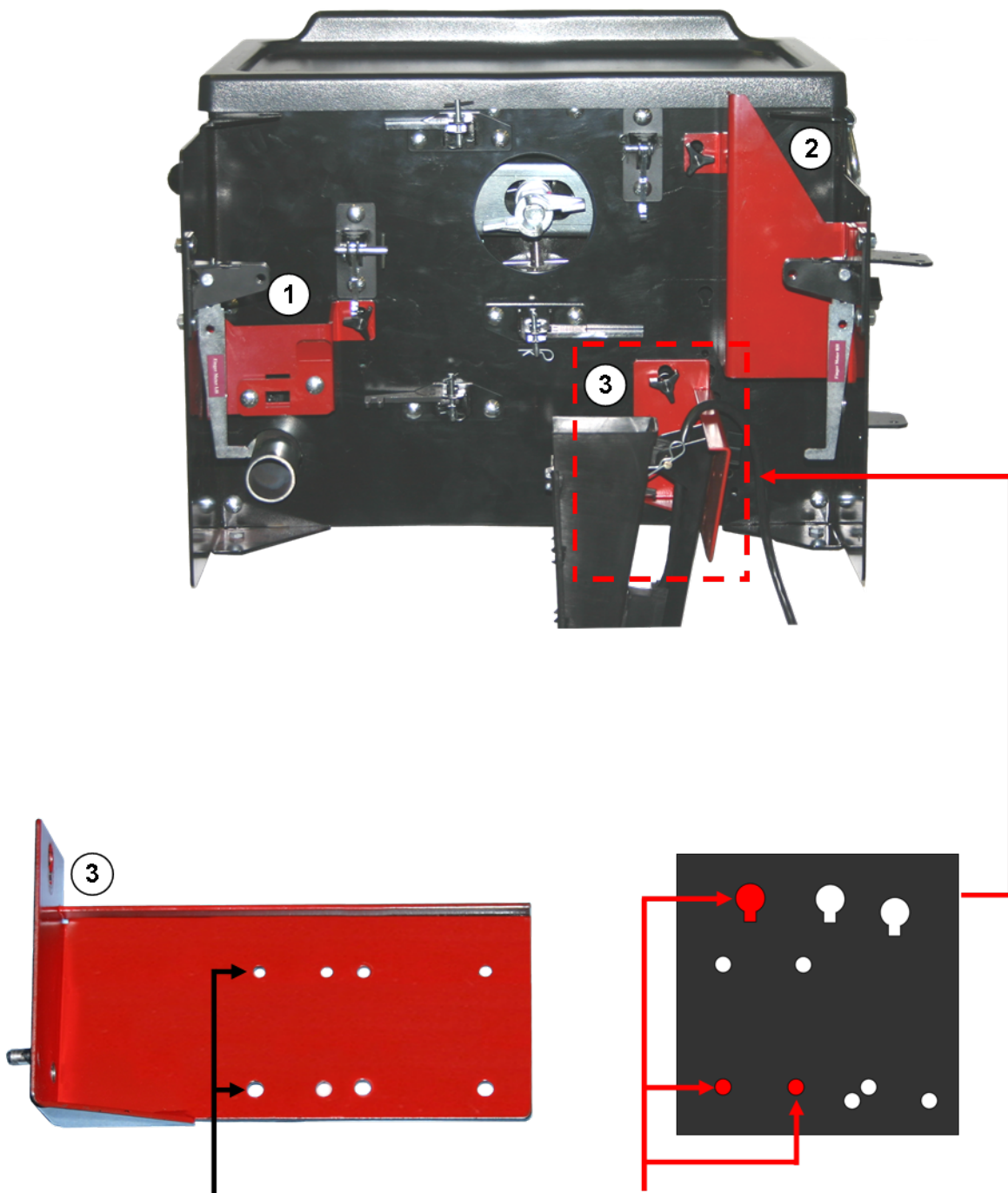
Use left and right hand Case hangers to hold meter. Lock Meter Max drive in back position to drive meter.



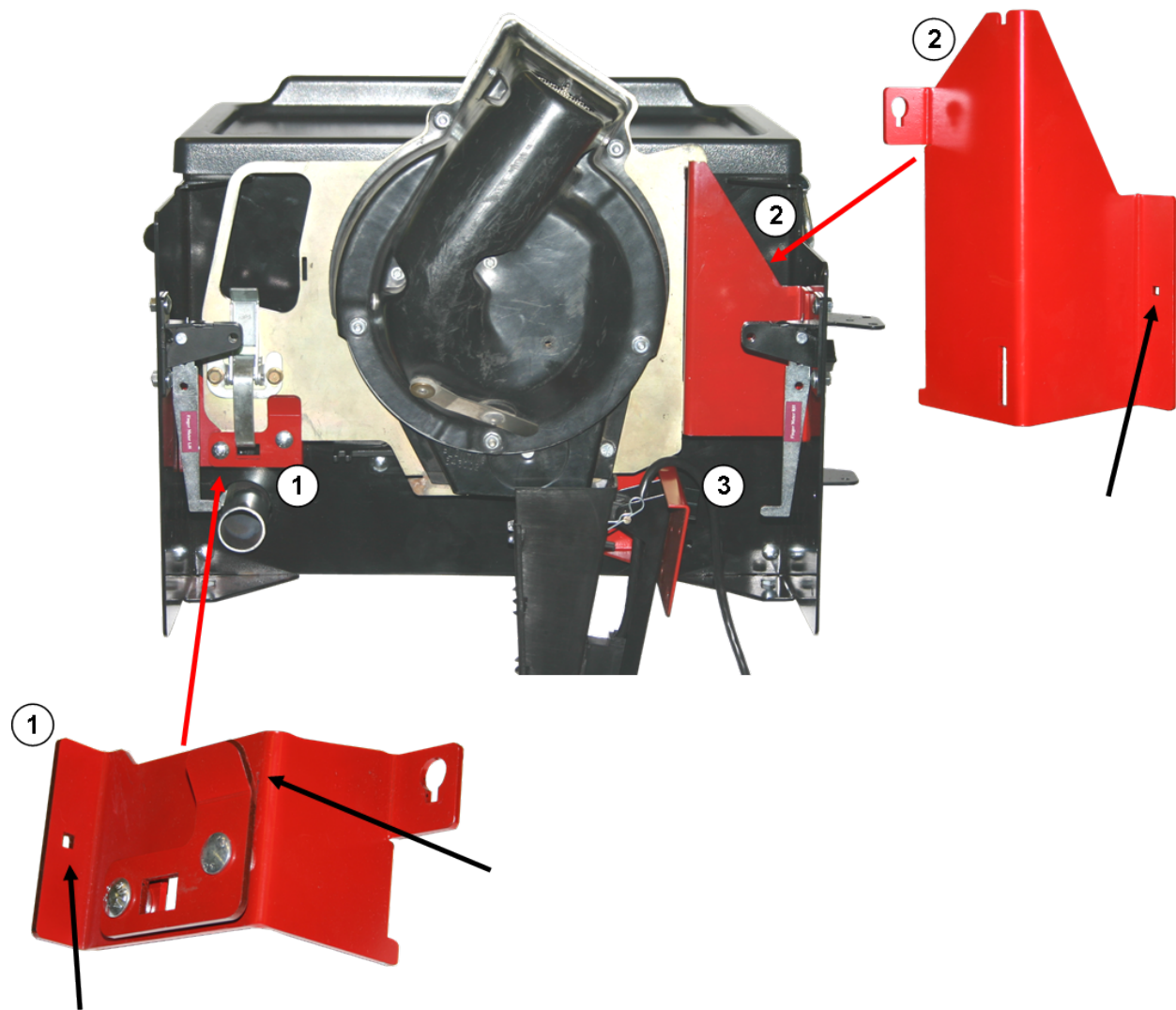
Great Plains

Use brackets 310120 and 310235 (shown in red) to mount a Great Plains meter on the MeterMax Ultra.

1. Mount the left Great Plains bracket (310120) with two bolts and nuts.
2. Mount the right Great Plains bracket (310235) with two bolts and nuts.
3. The seed tube mount will use the holes shown and the top pin will be secured by a nut. The Seed Tube Bracket will go into the left slots as shown, and the top slot will be secured with a bolt and nut.



The right side of the meter hooks onto the right bracket, while the left side sets down and clamps into position for a secure fit.



The left side of the meter fits between the two parts of the bracket then clamps down to secure the meter in place and prevent any wobbling.

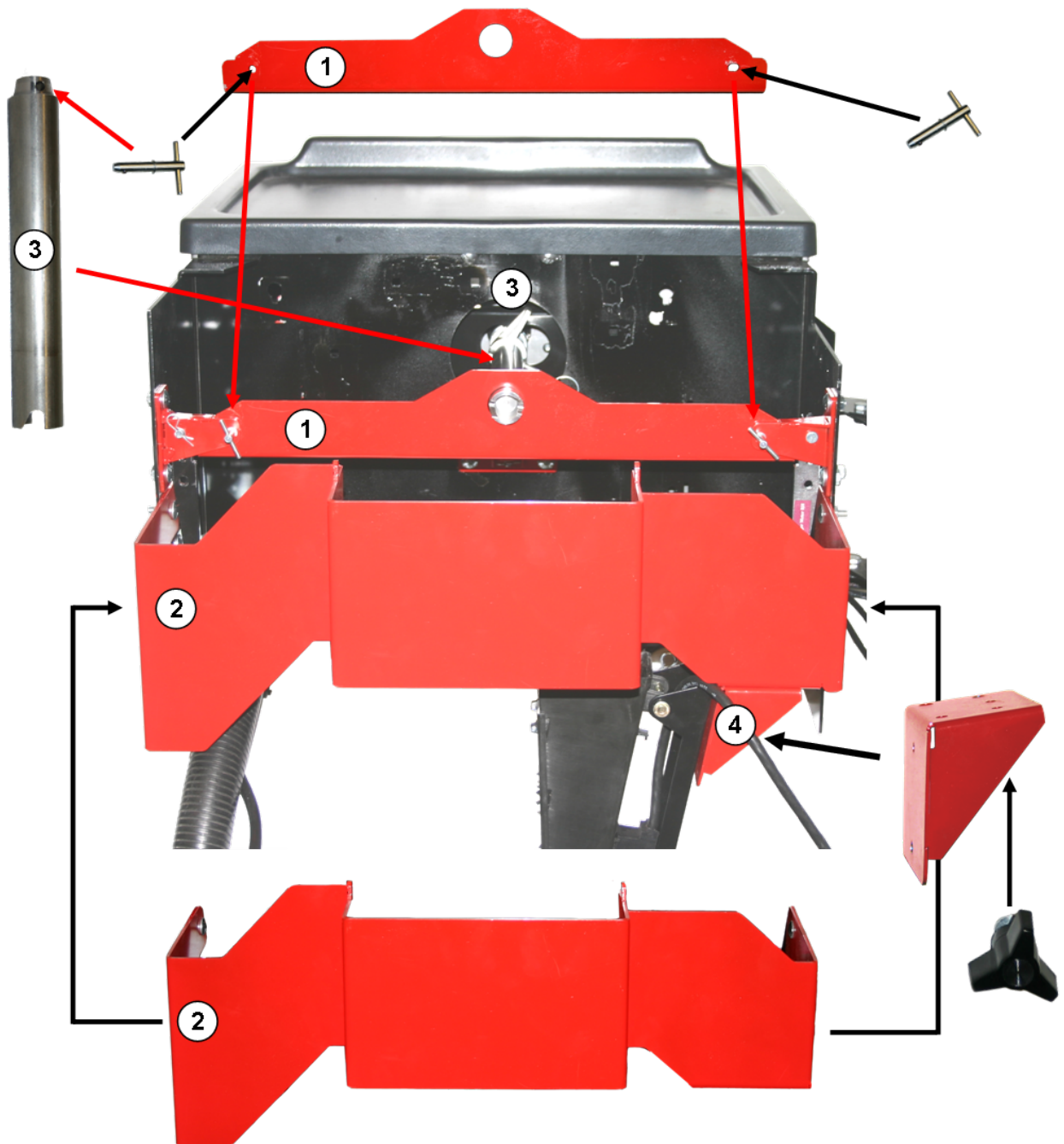
1. The left bracket arm supports and secures the left side of the meter with a clamp.
2. The right bracket arm supports the right side of the meter.
3. The Seed Tube Bracket Mount Holds the seed tube in position.

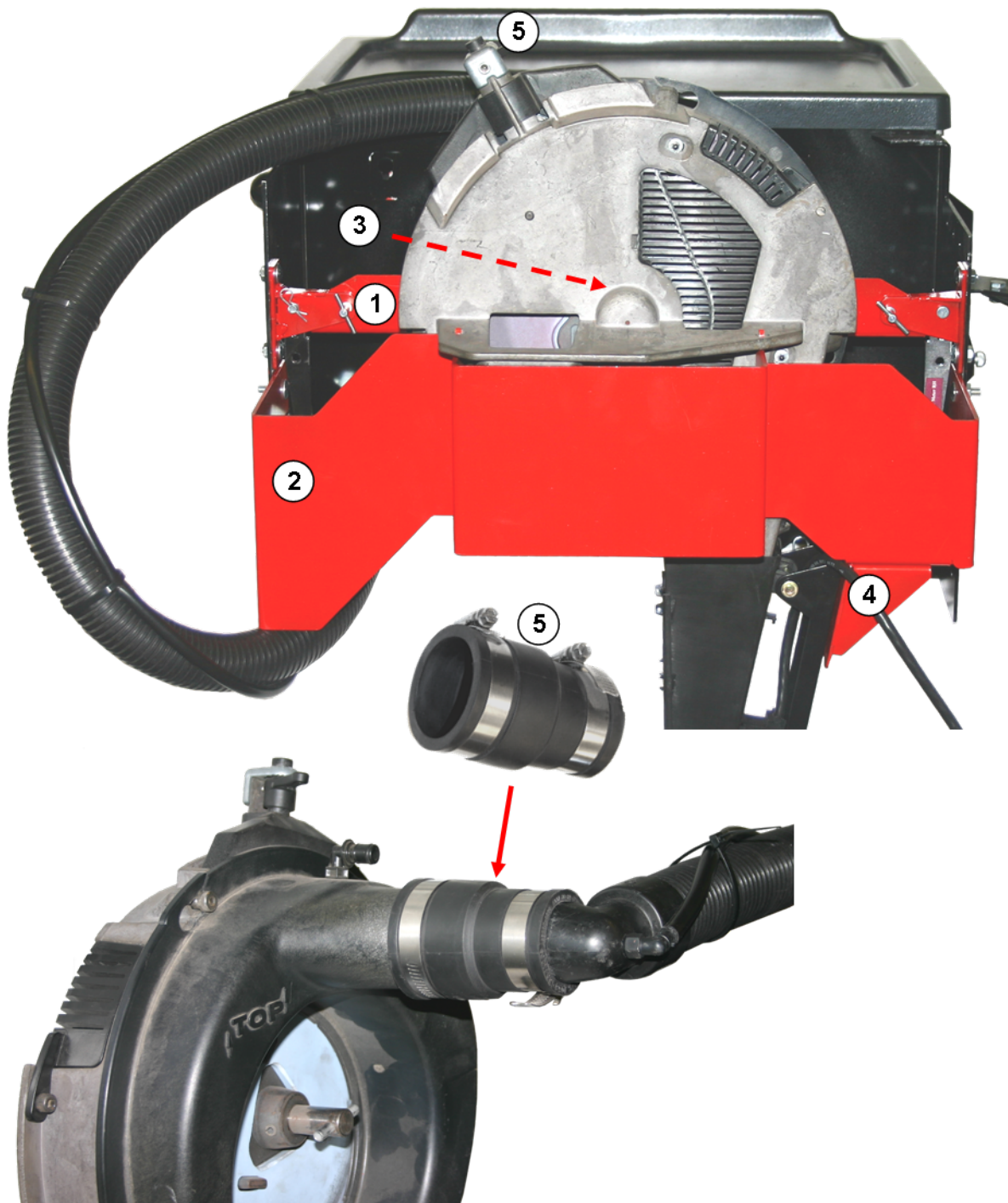
On the 20/20 change the meter type to Finger by selecting setup, Ultra, Meter Type, Finger.

Kinze EdgeVac

Use bracket kit 310204 to mount a Kinze EdgeVac meter on the MeterMax Ultra.

1. Mount the shaft support bracket to the finger meter brackets and secure in place with locking T-pin
2. Mount the EdgeVac bracket and secure in place with four bolts and nuts.
3. Attach the drive extension (310134) to the drive and secure in place with pin. The end of the drive extension should come through the hole of the shaft support bracket.
4. Attach the White seed tube mount bracket (310075) EdgeVac bracket. Then mount the seed tube and support to the bracket as shown.





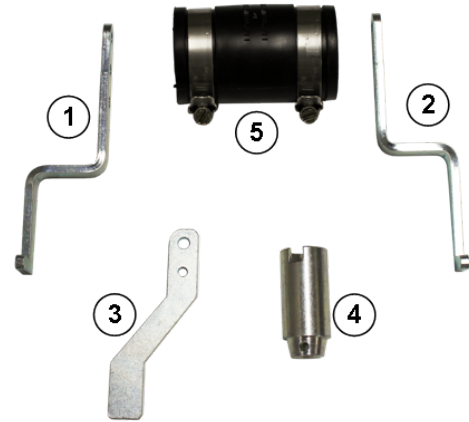
1. The shaft support bracket guides the shaft extension toward the meter.
2. The EdgeVac bracket supports the meter.
3. The Drive Shaft Extension extends the drive to run the meter.
4. The seed tube mount supports the seed tube.
5. Use this vacuum adapter to attach the vacuum hose to the meter.

Kinze 4000 Meter

Use kit 310248 to fit a Kinze 4900 Vacuum Meter to the MeterMax Ultra Test Stand.

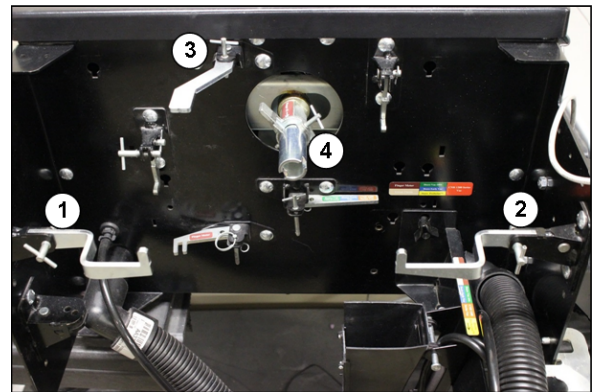
Parts List:

- **310303** vSet 2 Drive Adapter (Qty. 1)
- **310308** Left Hand KZ4000 Bracket (Qty. 1)
- **310309** Right Hand KZ4000 Bracket (Qty. 1)
- **310310** KZ4000 Upper Pivot Plate (Qty. 1)
- **310311** KZ4000 Vac Hose Adapter (Qty. 1)



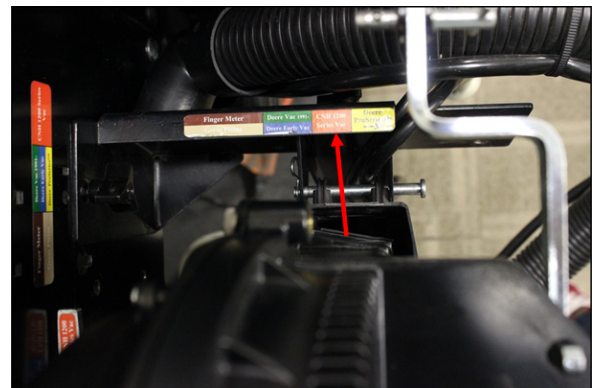
Step 1:

Install the left hand meter bracket (1), the right hand meter bracket (2), the pivot plate (3), and the drive adapter (4) as shown.



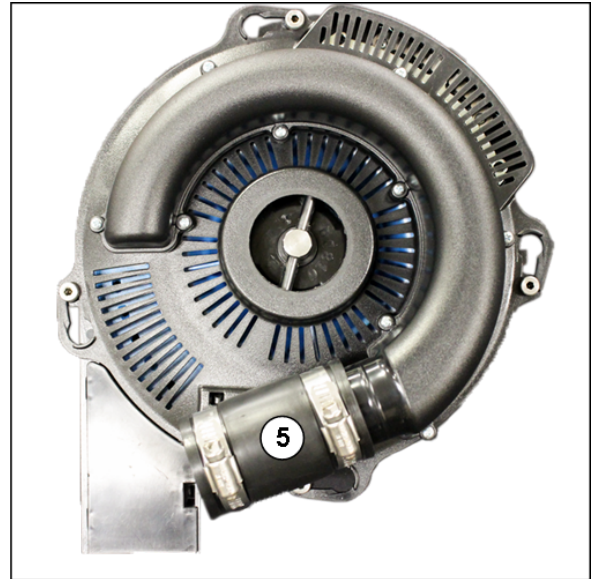
Step 2:

Move the seed tube holder to the CIH position.



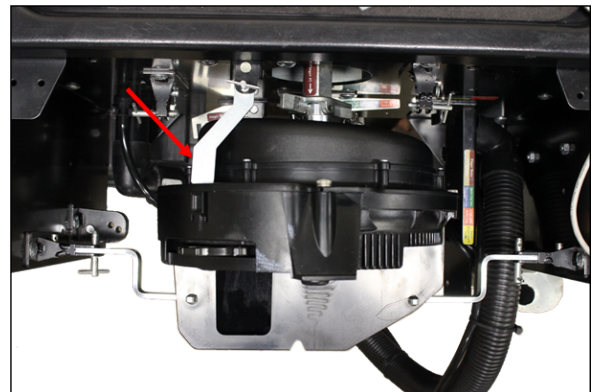
Step 3:

Install the vacuum adapter (5) to the meter.



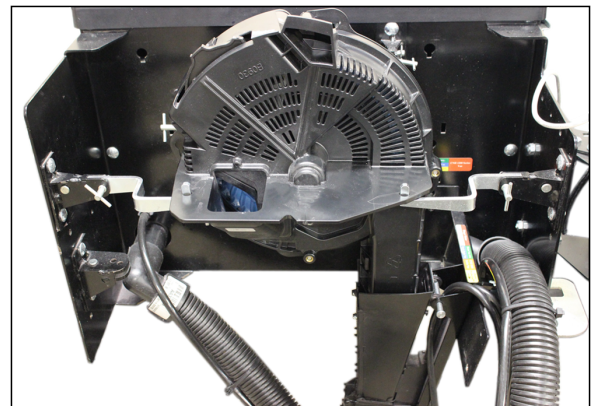
Step 4:

Mount the meter to the brackets and move the pivot plate into position.



Step 5:

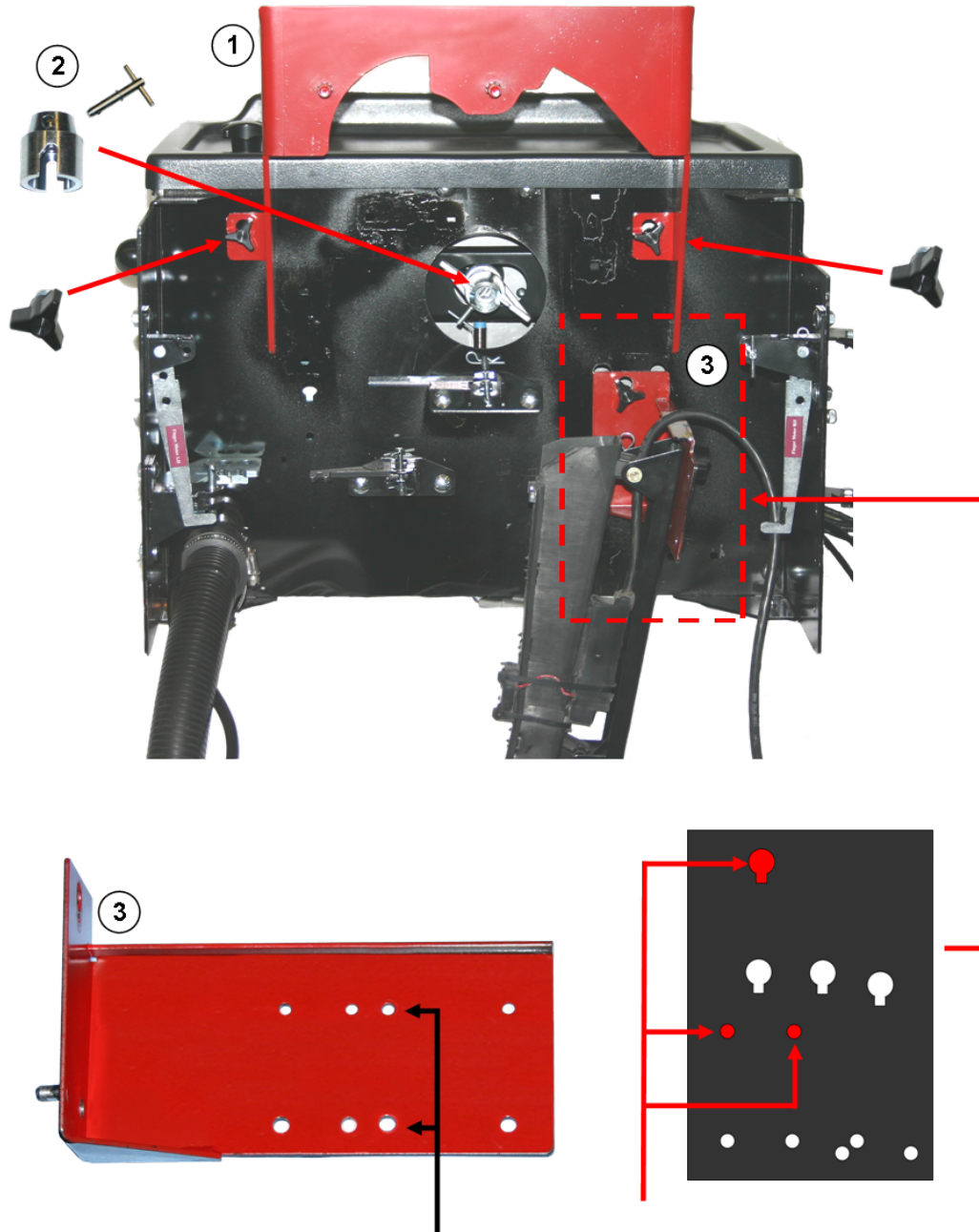
Connect the vacuum hose from the MeterMax Ultra to the vacuum hose adapter on the Kinze meter, engage the drive, and test the meter.

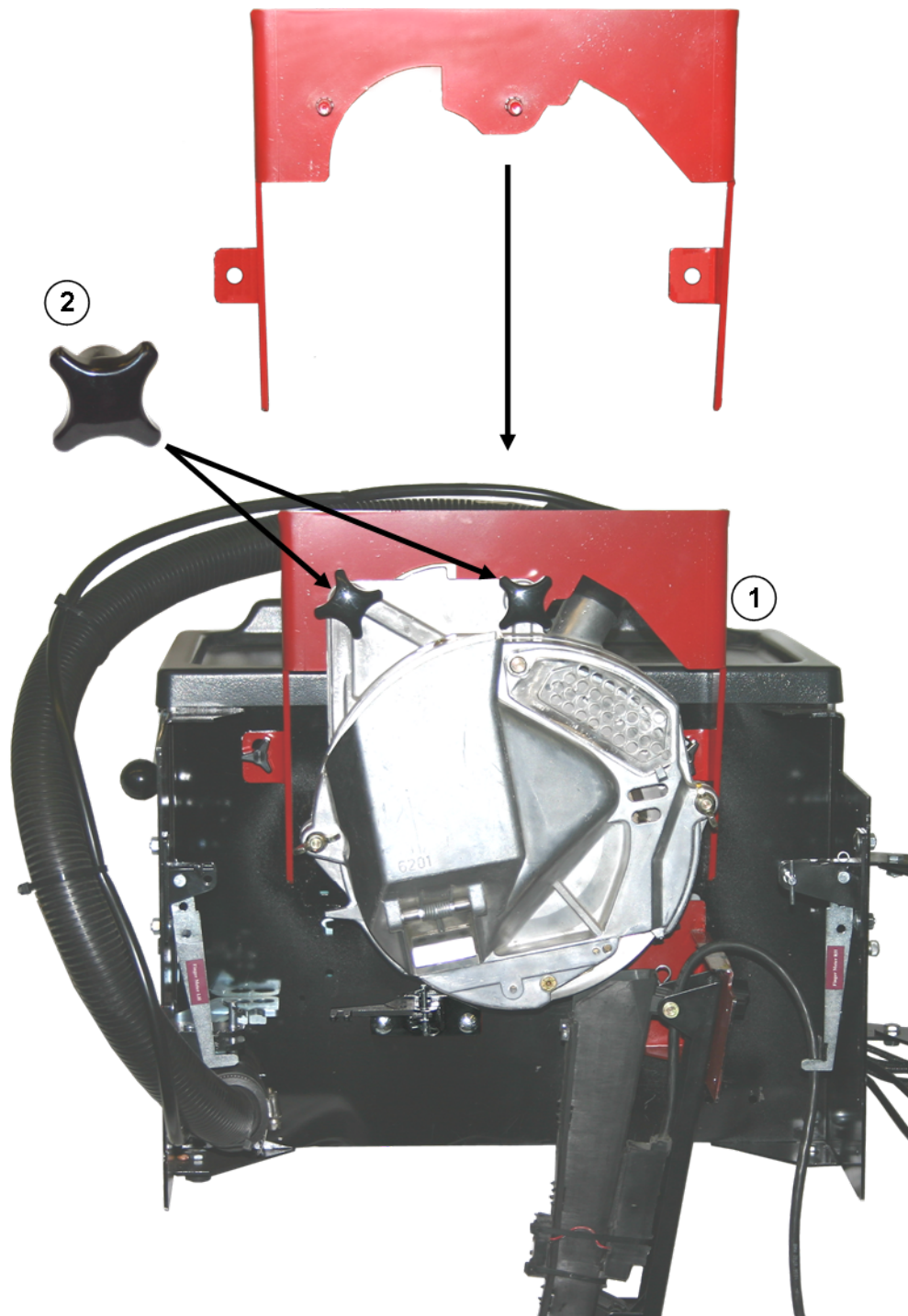


Monosem

Use bracket kit 310205 to mount a Monosem meter on the MeterMax Ultra.

1. Mount the Monsem Bracket and secure in place with two bolts and knob nuts.
2. Install the White meter drive adapter (310107) and secure with T-pin shown.
3. The seed tube bracket will go into the 3rd set of slots from the left as shown. The top slot will be secured with a bolt and nut.



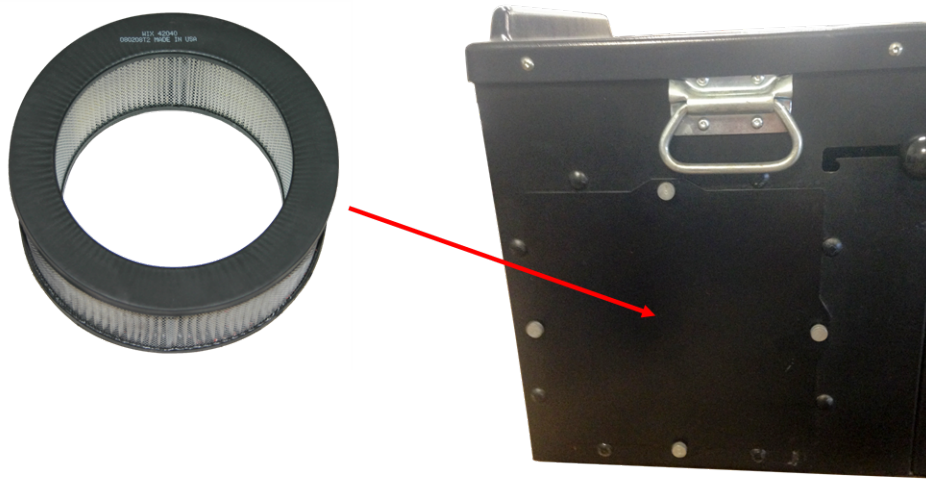


1. The Monosem Bracket supports and secures the Monosem meter in place.
2. Attach the two knobs to secure meter in place.

On the 20/20 change the meter type to Vac by selecting setup, Ultra, Meter Type, Vac.

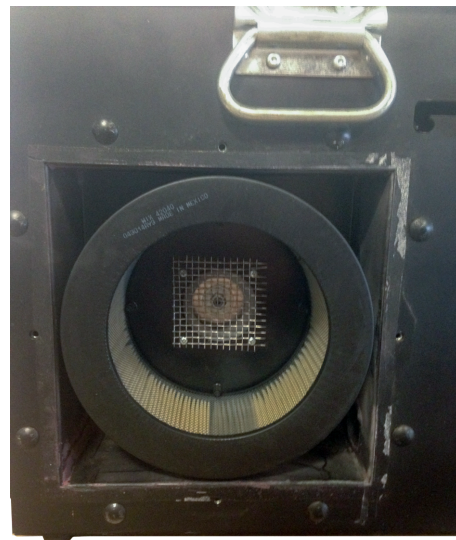
Filter

Place the filter inside the left air filter panel and use the pegs as a guide to secure the filter in the correct position, then seal the panel back into place.

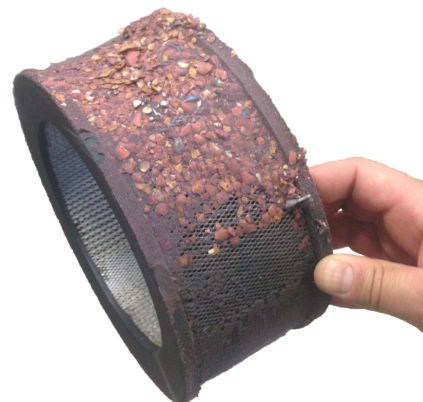


Part number for replacement filter:

- WIX 42040
- NAPA 2040

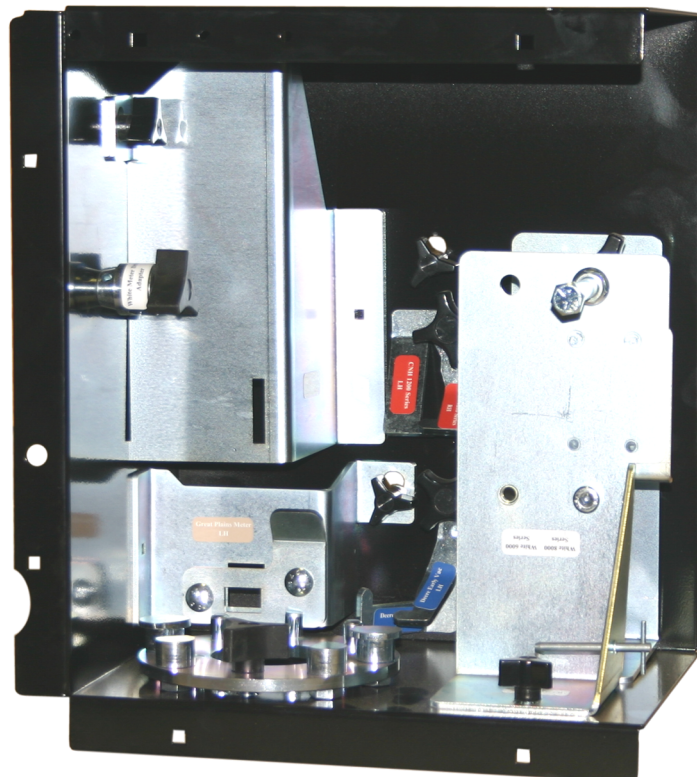


Clean or replace the filter if you cannot generate enough vacuum.



Storage Cabinet

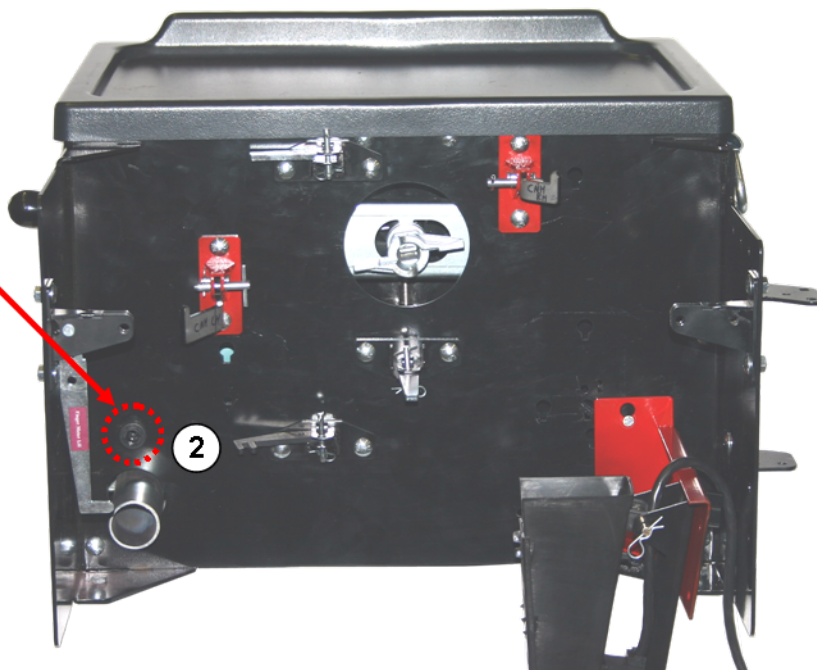
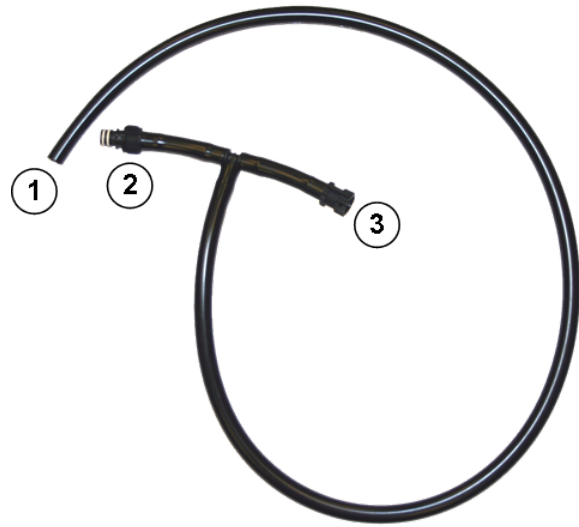
The arms and brackets can be stored inside the storage cabinet located on the right side of the Ultra to help keep all parts together organized in one location.



Vacuum Gauge Tester

Use this tester to check that the customers vacuum gauge is working properly and displaying the correct vacuum.

1. Connect tube end into the customers vacuum gauge.
2. Plug end into vacuum connector on Ultra stand.
3. Connect the tube from the Ultra stand with this connector.



Accessories

Printers

Precision Planting no longer sells a compatible printer.

DC to AC Power Inverter

The MeterMax Ultra Test Stand is a completely portable unit. To run it as a portable unit you will need a DC to AC power inverter or other type of power generator. The specifications for the inverters that have been tested are:

12V DC battery inverter with 110 AC outlets, 1,500 watts power with a 3,000 watts peak power.

The power inverter needs to be one that hooks directly to your battery and not to the cigarette lighter. The cigarette lighter does not allow enough volts to ensure correct start of the vacuum and motor. If you plan to run an extension from your battery to the inverter, make sure that you follow the manufacturer's recommendations to insure that you will still be able to receive at least 1300 watts of power for the MeterMax Ultra to operate.

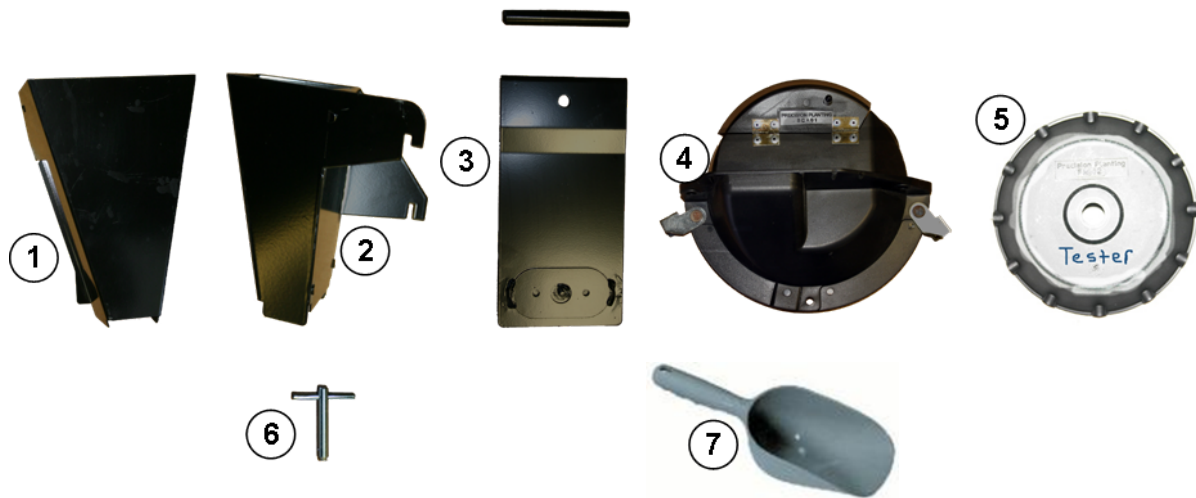


Note: At 1200 watts, the inverter will be drawing 100 amps of DC current.

Accessory Kits

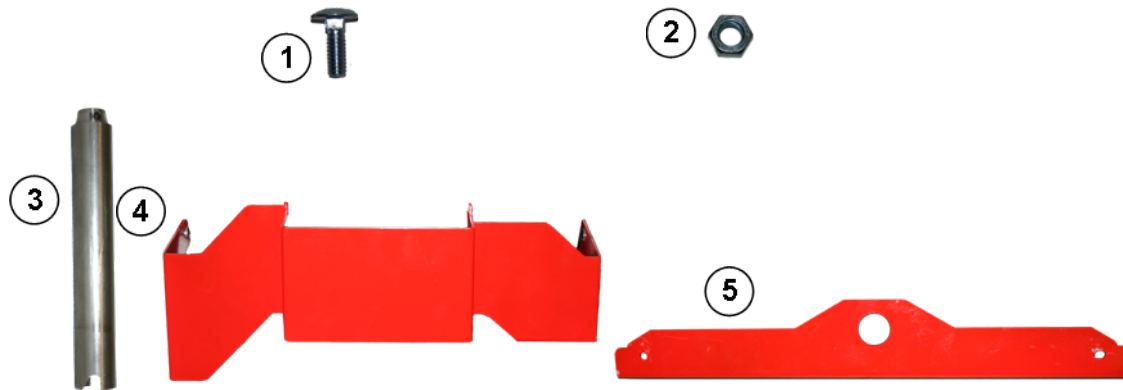
Accessory Kit #310201

1. JD Vacuum Meter Funnel
2. JD Finger Meter Funnel
3. Dimpling Punch & Plate
4. Easy Clip Hinged Lid
5. Ashtray Tester
6. Meter Quick Pin (3)
7. Scoop



Kinze EdgeVac #310204

1. Carriage Bolt (2)
2. ¼ Nut (2)
3. Drive Adapter
4. Mount Bracket
5. Shaft Support Bracket



Monosem Kit #310205

1. Mount Bracket
2. Carriage Bolt
3. Knob (2)
4. Knob (2)



vDrive Kit #310214

Parts List:

- **310192** vDrive/Ultra Harness (Qty. 1)
- **310193** 12V 5 A Power Supply (Qty. 1)
- **310194** Hanger Bracket (Qty. 1)
- **310195** SRM Mount Plate (Qty. 1)
- **729010** SRM (Qty. 1)
- **33078** 1/4" ZN Plated Washer (Qty. 2)
- **36036** 1/4" ZN Plated Nut (Qty. 1)
- **900116** 14" Black Cable Tie (Qty. 2)



ME5 Meter Kit #310219

Parts List:

- **310020** Meter Support Arm (Qty. 2)
- **310243** Lower Meter Support Bracket (Qty. 1)



vSet 2 Kit #310245

Parts List:

- **310301** Front Bracket (Qty. 1)
- **310302** vSet 2 Upper Pivot Plate (Qty. 1)
- **310303** vSet 2 Drive Adapter (Qty. 1)
- **310304** Funnel (Qty. 1)
- **310307** SpeedTube Upper Pivot Plate (Qty. 1)



Kinze 4000 Meter Kit #310248

Parts List:

- **310303** vSet 2 Drive Adapter (Qty. 1)
- **310308** Left Hand KZ4000 Bracket (Qty. 1)
- **310309** Right Hand KZ4000 Bracket (Qty. 1)
- **310310** KZ4000 Upper Pivot Plate (Qty. 1)
- **310311** KZ4000 Vac Hose Adapter (Qty. 1)



SpeedTube Kit #310340

Parts List:

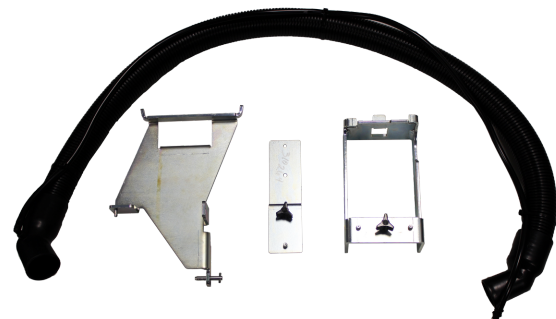
- **310083** 1/4-20 x 0.5" Bolt (Qty. 2)
- **310104** 10-24 x 0.5" Bolt (Qty. 2)
- **310105** Knob (Qty. 2)
- **310317** Frame (Qty. 1)
- **310324** Rear Meter Support (Qty. 1)
- **310338** Wing Nut (Qty. 2)
- **310339** Shoe Assembly (Qty. 1)
- **729287** Harness (Qty. 1)



vSet Select Kit #310270

Parts List:

- **310086** Pin (Qty. 1)
- **310105** Knob (Qty. 2)
- **310260** Front Mount (Qty. 1)
- **310264** Seed tube riser (Qty. 1)
- **310265** Rear Mount (Qty. 1)
- **310330** 1.5 Hose (Qty. 1)



Parts List

