

SpeedTube™

SpeedTube Operator's Manual For Gen 3 20|20 Displays

Precision Planting®

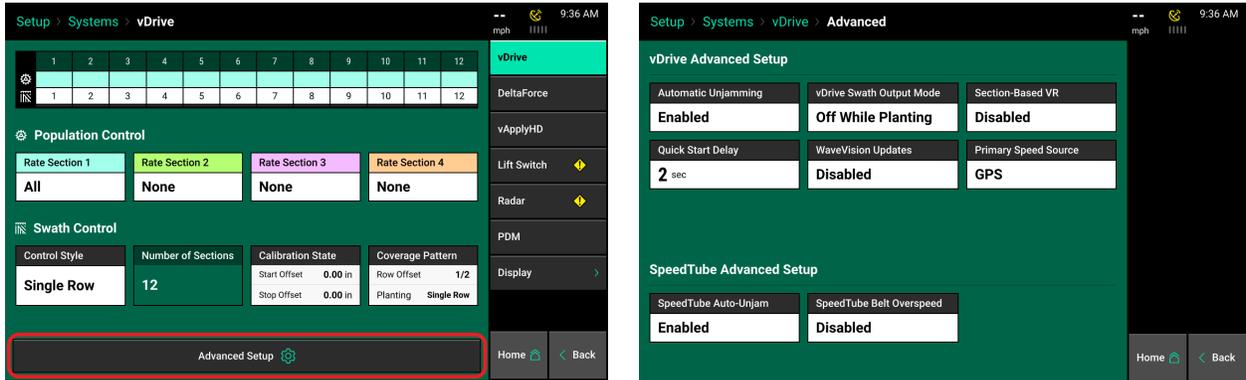
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SpeedTube Setup

SpeedTube is automatically detected by the 20/20 SeedSense monitor and requires no specific setup. Simply plug the SpeedTube harness into the SpeedTube module and the SpeedTube will be ready for operation after initial updates.

To view the SpeedTube setup page select: Setup – Systems – vDrive – Advanced Setup

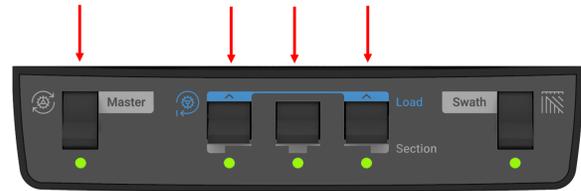


The available settings for SpeedTube are “SpeedTube Auto-Unjam” and “SpeedTube Belt Overspeed”. The default setting for Auto-Unjam is “Enabled”. When enabled, SpeedTubes will automatically reverse belt direction to clear a detected jam/obstruction. The default setting for “SpeedTube Belt Overspeed” is “Disabled”. This value should not be changed unless directed by Product Support.

Refer to the SeedSense Operators Manual for general planter configuration/setup and vDrive Operators Manual for vDrive system setup.

SpeedTube Operation

SpeedTubes will operate anytime the Master Plant or a single Section Plant switch is active on the Cab Control Module. If the planter is not moving (lifted or lowered), SpeedTubes will operate at a minimum belt speed. To deactivate SpeedTube operation, the Master Plant and all three Section Plant switches must be off.



Vacuum Setting

Increased vacuum is sometimes necessary when operating SpeedTube at higher speeds. This will help limit seeds from dropping off the disk (due to increased rough ride) before reaching the feeder wheels.

Ride Quality Metric

Ride Quality is of limited significance when SpeedTube is installed across the whole planter. As long as other planting metrics (SRI, ground contact, etc.) are acceptable, “poor” Ride Quality will not impact performance. Operators should not limit speed based solely on Ride Quality. The “Smooth Ride Limit” can be adjusted as needed by going to Setup – Crops – Limit Adjustments.

SpeedTube Diagnostics

When components are powered and communicating properly with the Monitor, modules will be green on the diagnose page.

Navigate to the SpeedTube Diagnose page by selecting: Setup – Diagnose - SpeedTube.



The SpeedTube Diagnostic page displays the following information for each row:

Row	Flights per Second Act	Flights per Second Cmd	Stability	Supply Volts	Drive Amps	Duty Cycle	Total Seeds
1	0.0	0.0	0%	13.40	0.00	0%	0
2	0.0	0.0	0%	13.32	0.00	0%	0
3	0.0	0.0	0%	13.32	0.00	0%	0
4	0.0	0.0	0%	13.43	0.00	0%	0
5	0.0	0.0	0%	13.30	0.00	0%	0
6	0.0	0.0	0%	13.35	0.00	0%	0
7	0.0	0.0	0%	13.28	0.00	0%	0
8	0.0	0.0	0%	13.35	0.00	0%	0
9	0.0	0.0	0%	13.35	0.00	0%	0
10	0.0	0.0	0%	13.25	0.00	0%	0
11	0.0	0.0	0%	13.45	0.00	0%	0
12	0.0	0.0	0%	13.38	0.00	0%	0

Lift State: Raised Radar Speed: Uncalibrated GPS Speed: Waiting Comm FWD Accel: 0.000 ft/s/s Master Plant: Off Turn Rate: 0.00 deg/s

- Speed Source – Will display speed readings for both GPS and Radar
- Actual FPS (Flights per Second) – Measure of SpeedTube belt speed and is the number of belt flights per second as detected by seed sensors.
- Command FPS (Flights per Second) – SpeedTube belt speed or flights per second as commanded.
- Stability – Displays stability of SpeedTube motor.
- Supply Volts – Voltage at SpeedTube Module.
- Drive Amps – SpeedTube current draw in amps.
- Duty Cycle – Displays SpeedTube motor output over the operating range.
- Total Seeds– Seeds detected on each row.

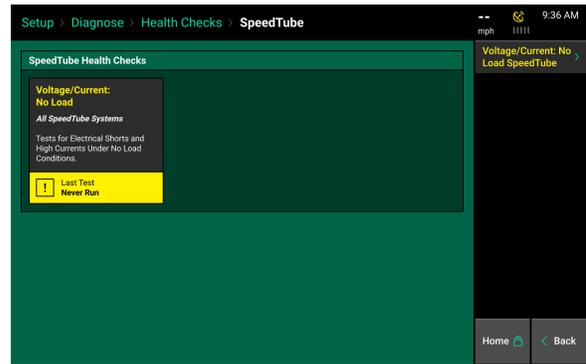
Additionally: Lift State position, Radar speed reading, GPS speed reading, Forward Acceleration, Master Planter Switch position, and Turn Rate will be displayed at the bottom of the page.

SpeedTube Health Checks

After all components are detected and communicating properly, SpeedTube Health Checks should be performed. The Health Check page can be accessed from the SpeedTube Diagnostic page by selecting “Health Checks” from the navigation pane on the right hand side of the screen.



Select “Voltage/Current No Load” and follow the onscreen prompts for test requirements and to begin the test.



The health check will operate through three different sections. The initial section is a warmup period in which the SpeedTubes will operate at a FPS (or RPM) equivalent to travelling at 11 MPH. During the second section, the SpeedTubes will run at a FPS equivalent to 0.5 MPH. The final portion of the health check will operate the SpeedTubes at a FPS equivalent to 10 MPH. Data is collected during the 0.5MPH and 10 MPH portions.

Row	Pass/Fail	Volts		Amps	Speed Test at 30 RPS			Speed Test at 80 RPS			
		Min	Avg		DC Min	DC Max	Stability	Amps	DC Min	DC Max	Stability
1	Failed	9.2	12.1	0.33	26.0	27.9	96.6	1.46	84.0	89.9	99.5
2	Passed	10.8	11.9	0.34	23.9	26.0	97.4	1.64	81.0	88.0	98.9
3	Passed	11.1	12.1	0.31	23.9	27.0	96.6	1.59	81.9	88.0	99.5
4	Passed	11.2	12.2	0.32	26.0	27.9	97.4	1.65	82.9	89.0	98.9
5	Passed	11.0	12.0	0.29	23.9	26.0	97.4	1.54	80.0	85.9	99.5
6	Passed	11.0	12.1	0.27	22.9	26.0	96.6	1.41	80.0	85.9	99.5
7	Passed	10.7	12.1	0.32	22.9	25.0	97.4	1.69	77.0	82.9	98.9
8	Failed	9.9	12.1	0.26	23.9	27.0	96.6	1.36	81.0	86.9	98.9
9	Failed	10.6	11.9	0.50	27.0	28.9	96.6	2.32	85.0	90.9	96.0
10	Failed	8.6	11.9	0.29	23.9	26.0	96.6	1.41	81.0	88.0	98.9
11	Passed	11.2	12.3	0.30	22.9	25.0	97.4	1.56	80.0	85.0	99.5
12	Passed	10.7	12.2	0.32	26.0	27.9	96.6	1.55	81.9	88.0	99.5

Below are the failure thresholds for the health check:

Voltage

<10 volts

Amperage

0.5 MPH Test: >0.5 Amps

10 MPH Test: >4.0 Amps

Duty Cycle

0.5 MPH Test: >30%

10 MPH Test: >95%

Stability

0.5 MPH Test: +/-6%

10 MPH Test: +/-3.5%

The results page will be red for rows which no information was received and yellow for any values out of range.

In the event of a failed Health Check, reference the instructions listed below.

- Voltage Failure: There is low supply voltage. Check harnessing for damage and ensure alternator is operating.
- Amperage Failure: Ensure voltage is within range. Check for obstructions or misaligned parts in SpeedTube.
- Duty Cycle Failure: Check for obstructions or misaligned parts in SpeedTube.

Note: If problems persist, refer to the Dealer Service Manual for more detailed information.