396-001550

Commander II for PumpRight Hydraulic Pumps Quick Start Card
2022 Software rP G

In-Field Operating Instructions

VOLUME: Displays total gallons (liters) of liquid applied. Can be reset to 0 by holding the reset button (3 counters)

VOLUME/MINUTE: Displays gallons (liters) of liquid applied per minute. Use this to read instant flow in GPM.

TANK: Displays gallons (liters) of liquid remaining

RATE: Displays application rate GPA(LPH)

RUN/HOLD: Turns liquid application on (RUN) or off (HOLD)

3 SECTION SWITCHES: Turns application on or for each section. If not dividing implement into sections, use Section 1 switch only.

AREA: Displays the area of coverage by the equipment in acres (hectares). May be reset (3 counters)

DISTANCE: Displays the distance traveled in feet (meters). May be reset (3 counters)

PRESSURE: Displays the liquid pressure at the location of the optional pressure sensor. In addition to displaying Pressure the console will warn the operator with HiPSI (High Pressure) message when the input pressure exceeds the maximum pressure (set in Special Cal)

SPEED: Displays ground speed in miles per hour (Kilometers per hour).

ON/OFF: Commander II power switch. When the console is turned on (except when starting in "SPECIAL" CALIBRATE) the data display will show the **Number of Hours** it has operated for one second, followed by the **Software Part Number (45216)** and the **Software Revision (rP X)** for 1.5 seconds each. Then it will display the **Control Mode (P-FLO or S-FLO)** for 1.5 seconds.

AUTO/MAN: Key which changes operation from automatic control to manual.

CAL: This key is used to enter & exit calibration mode.

RESET/ - : When not in CAL, clears the selected counter when held for two seconds.

+ & - : Plus & Minus keys are used to increase and decrease values

Five Steps for Commander II Setup for SureFire PumpRight hydraulic pump Systems

1. **Commander II Special Cal Quick Setup**
2. **Standard Calibration**
3. **Initial Operation in Manual Mode**
4. **Test Speed Operation in Auto Mode**
5. **Speed Signal Verification & Field Operation**

NOTICE

Operator should read the full manual before operating the system.

⚠ DANGER

This system uses hydraulic oil under extremely high pressure. Do not use hand or any other skin to check for or to stop hydraulic leaks. Be sure pressure is relieved before loosening hydraulic fittings. Replace worn hoses immediately. Seek medical care immediately if hydraulic oil is shot into the eye or the skin.
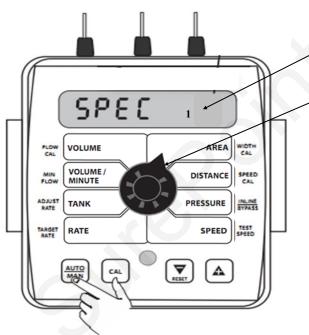
Commander II Special Cal Quick Setup

The Commander II has a quick setup feature to load the necessary defaults for a SureFire Tower or PumpRight system. **Follow the steps below BEFORE performing standard calibration on next page.**

To change defaults:

1. Power off Commander II.

2. Enter Special Cal by holding both the AUTO/MAN and the CAL button down while turning on the power switch.

3. You should see "SPEC" on the screen, if not repeat steps one and two.

4. Ensure "1" displays to indicate Page 1 in Special Cal. Press CAL to change if necessary.

5. Turn dial to point at AREA.

6. Select desired defaults from chart below. (Press the UP or DOWN arrows in bottom right corner to change selection.)

   - Select "**HP-E**" for **PumpRight or other Hydraulic Pumps** (*HP-E is **H**ydraulic **P**WM-**E**nglish*)

   - Select "**EP-E**" for Tower Electric Pumps

7. Save changes by holding CAL until red light goes out (about 3 seconds).

NOTE: **The above procedure will load all default values in the Commander II. It must be done before standard calibration.** For example, if you entered your implement width, then did the quick setup above,

This number tells you which special CAL screen you are on. Pressing the CAL button will change this number. Quick Setup is on Page 1, with dial turned to AREA.

Select **"HP-E" for PumpRight Hydraulic Pumps** (Press the UP or DOWN arrows in bottom right corner to change selection.)

Check the Harness Connections

Be sure the harnessing is plugged in correctly. The cable from the **Astro speed sensor** must be plugged into the connector with the **Yellow zip tie** on the back of the Commander II. If it is plugged into the Gray zip tie, as soon as you start driving, the Commander will have a fast, clicking sound and it will switch quickly and repeatedly between RUN and HOLD as the pulses from the speed sensor change the system from RUN to HOLD and back quickly.

There is also a place on the implement where connections can be made wrong. If the RUN/Hold connector on the implement is plugged into the flowmeter, as soon as product starts flowing, the pulses from the flowmeter will make a fast clicking sound on the Commander II as the system switches between RUN and HOLD.

Standard Calibration Procedure: DO THIS

Step 2

1. Press CAL key for one (1) second to enter calibration mode.
2. Red light will be on steady and CAL will be displayed in CAL mode.
3. Turn the dial to the items listed below and set as instructed.
4. When complete, press CAL for one (1) second to exit CAL mode. Red light should go out and CAL will not be displayed. **You MUST exit Calibration mode to save your settings.**

(Verify) FLOW CAL: Enter the calibration number for your **flowmeter** here. On electromagnetic flowmeters the calibration number is from the chart below. **(These numbers are for flowmeters sold after 10/15/2012. These meters have a blue label with white text. Earlier flowmeters (white label with black text) use different FLOW CAL numbers.)** On turbine flowmeters, the calibration number is on a metal tag attached to the flowmeter.
Quick Tip: To quickly change the flow cal, press the AUTO/MAN button to allow you to directly change the 2 left digits (thousands). Then press the UP or DOWN arrow to change the number. Press AUTO/MAN again to change the right 3 digits.
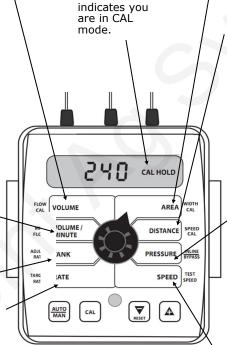
Flow Range (GPM)	Pulses/Gallon	Commander II Flow CAL
0.13 - 2.6	3000	**6000**
0.3 - 5	3000	**6000**
0.6 - 13	2000	**4000**
1.3 - 26	2000	**4000**
2.6 - 53	2000	**4000**
5 - 106	568	**1136**

P/F Ratio: Not used at this time.

ADJUST RATE: Sets amount of rate change by pressing "+" or "-" button once. Usually set to 1.0. This allows you to change from 8 GPA to 9 GPA to 10 GPA etc.

DO THIS - TARGET RATE: Set to your intended target rate in Gallons per Acre.

NOTE: This indicates you are in CAL mode.

DO THIS - WIDTH CAL: Enter the width of each fertilizer or chemical section of your implement. For a single section system, set Section One to the full implement width in inches. For example, for an 8 row 30" implement, set Section One to 240 inches. To set the section widths the Run/Hold Switch has to be in Run and the Section Switch must be ON. If using a single section implement, set Section 2 and 3 to ZERO.

VERIFY - SPEED CAL: Used in calibration mode to enter the speed calibration number in inches (cm) per pulse. Default is 0.189 for SurePoint Astro GPS speed sensor.

When using the shaft speed sensor on grain drills, this will need calibrated. SurePoint recommends you enter a value of 1.0 as a starting point. See section G for that calibration procedure under "Ground Speed Displayed is not correct".

VERIFY - CONTROL SPEED: Typically **-4 (2022)** for PumpRight Hydraulic Pumps.

Allows adjustment of response to "tune" the system for use with fast or slow valves. For example, if response is too slow, use the "+" button to adjust the valve response number to 1, 2 or 3. The range of adjustment is -8 to +3.

TEST SPEED: Use this mode to verify controller automatic operation only AFTER initial operation in MANUAL mode (see next page).

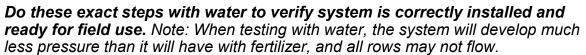*(Control panel display shows: 240, CAL HOLD. Buttons: FLOW CAL / VOLUME, ml FLC / VOLUME/MINUTE, ADJ RAT / TANK, TARG RAT / RATE, AREA / WIDTH CAL, DISTANCE / SPEED CAL, PRESSURE / INLINE BYPASS, SPEED / TEST SPEED, AUTO/MAN, CAL, RESET, up/down arrows)*

Standard CAL Factory Defaults: (for Software Revision **rP G - 2022**)

Software Revision identification displays briefly when Commander II is started.

Electric Pumps: 6000 **Hydraulic Pumps: 4000**	FLOW CAL	VOLUME	AREA	WIDTH	Boom 1: 240 Inches Boom 2: 0 Inches Boom 3: 0 Inches
Off	P/F RATIO	VOLUME/MINUTE	DISTANCE	SPEED CAL	0.189
1.0 GPA	ADJUST RATE	TANK	PRESSURE	CONTROL SPEED	PWM Electric: -2 PWM Hydraulic: -4 (2022) Servo Electric: -1 Servo Hydraulic: -2
10.0 GPA	TARGET RATE	RATE	SPEED	TEST SPEED	Off

Initial Operation Instructions—*DO THIS*

Do these exact steps with water to verify system is correctly installed and ready for field use. *Note: When testing with water, the system will develop much less pressure than it will have with fertilizer, and all rows may not flow.*

♦ Test the system in **MANUAL mode**.

Step 3

1. Push the **AUTO/MAN** button until **MAN** is displayed on the Commander II. You are now in Manual mode.
2. Put the system in **RUN**. Turn the console switch to RUN or lower the implement if using a mercury Run/Hold Switch. When HOLD Is not displayed on the screen the system is in RUN.
3. Turn dial to **VOLUME/MINUTE** position.
4. Close the recirculation knob on the pump. Open the Air Bleed valve on the pump. Be prepared to close the valve when water comes out.
5. Turn **Section 1 switch ON**.
6. Is a number displayed on the screen? Push and hold the (+) button. Does the flow increase? Push the (-) button. Does the flow decrease?
7. If no reading in VOLUME/MINUTE, is the pump turning and is there water present at the pump inlet?
    NOTE: Feel if pump is vibrating to tell if it is running.
8. You must determine if pump is turning , then determine if you have an electric or a hydraulic issue. See Section G-Troubleshooting in the system manual to isolate electric vs. hydraulic issues.
9. If water is being pumped, but no reading on the Commander VOLUME/MINUTE, check the flowmeter connections and the Flow Cal value.

Proceed to STEP 4 ONLY when you can increase and decrease the VOLUME/MINUTE reading using the (+) and (-) keys on the Commander II.

Step 4

♦ Test the system in **Test Speed (AUTO) mode.**

1. Enter calibration by pushing and holding the **CAL** button until **CAL** is displayed on the Commander II and the red light is on.
2. Push the **AUTO/MAN** button until **AUTO** is displayed, indicating you are in automatic mode.
3. Turn the dial to **Test Speed** in the bottom right corner. Use the + key to adjust to your field operating speed.
4. Turn Run/Hold switch on Commander II to **RUN**.
5. Turn Run/Hold **mercury switch to Run** by lowering the implement, unplugging it, or manually tilting the switch.
6. Turn at least **Section 1 switch ON**.
7. You should now be dispensing liquid as if you were traveling through the field at the test speed you entered. *The system will develop much less pressure with water than it will have with fertilizer. If the pressure is too low, not all of the check valves will open, and some rows may not flow.*

Proceed to the next step when liquid application is verified in AUTO mode.

♦ Verify the Commander II **Speed** is correct.

Turn the dial to **SPEED**. Drive the tractor. Does the speed reading seem reasonable and correct? The ASTRO II will be a more accurate speed than an un-calibrated tractor speedometer.

Proceed to the next step when your Commander II Ground Speed is correct.

♦ You are now ready to verify regular field application.

Step 5

See the complete system manual, 396-001460 or 396-5545Y1 (2022), for more information. https://support.surepointag.com/products/215

NOTICE *Running these tests will dispense liquid. Be sure it is safe to dispense the liquid in your tank in this location.*