






# Synchro™

## Quick Reference Information

			SYNCHRO 209XXXX
<a href="https://orchard.capstanag.com">orchard.capstanag.com</a>			192.168.0.1/generate.html
			192.168.0.1/transmit.html

## Make a Profile on the Internet

A profile can be made on a computer or mobile device such as a tablet or phone that is connected to the internet. If you are using a device that is not portable, you will need to be able to transfer the profile to a portable device like a tablet, phone, or laptop computer.

1. Go to <https://orchard.capstanag.com>.

2. Enter the correct information for your sprayer.

See the next page for more information on the website.

3. Make sure that you have given your profile a name.

4. Click on Download Profile.

- The profile is now downloaded to your device. If you are using a device that is not portable, you will need to move the profile to a portable device like a tablet, phone, or laptop computer or to a virtual location (cloud storage DropBox, GoogleDrive, email, etc.).
- You are now ready to transmit the profile.

**NOTE:** Once a profile is transmitted to the controller it cannot be deleted. However, a profile can be overwritten by another file with the exact same name.

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## Make a Profile on the Controller Wi-Fi

1. On the machine/sprayer, toggle the red Synchro switch (1) to on. The light on the switch will illuminate.

2. On your device, connect to the SYNCHRO 209XXXX WI-FI.

- The XXXX shown above will be the last 4 digits of the controller serial number.
- There is no password for this Wi-Fi connection.

3. Go to [192.168.0.1/generate.html](https://192.168.0.1/generate.html).

4. Enter the correct information for your sprayer.

See the next page for more information on the website.

5. Make sure that you have given your profile a name.

6. Click on Save Profile.

- You are now ready to transmit the profile.

**NOTE:** Once a profile is transmitted to the controller it cannot be deleted. However, a profile can be overwritten by another file with the exact same name.

# Website Descriptions

## Values on the left side of the screen:

- **Profile Name:** Name the profile for the sprayer
- **Rate (gpa):** The rate of application of product
- **Speed (mph):** Enter the speed the machine will be moving when product is applied.

**NOTE:** It is the responsibility of the operator to maintain this speed.

- **Row Spacing (feet):** The distance between the rows.
- **Tip Size:** Enter the tip sizes in the additional spaces that show on the screen, i.e. #8 tip = 0.8 gpm @ 40 psi. See the correct tip chart for the correct information. This number reflects the sum of tips if multiple tips per nozzle. i.e. splitter with three tips—one #8 and two #3 = #14.

- **Pressure (psi):** The force at which you want to spray.
- NOTE:** It is the responsibility of the operator to maintain this pressure.

- **Density (lbs/gal):** Water is equal to 8.33.
- **Frequency (Hz):** If the system has one tip per valve use 10 Hz. If the system has multiple tips per valve use 3 Hz. For additional information, contact your CapstanAG representative for specific settings.
- **Multiple Tip Sizes:** Put a checkmark in the box and a Tip Size column will show on the right side of the screen.
- **Show Nozzle Duty Cycle:** Put a checkmark in the box and a Duty Cycle column will show on the right side of the screen.

- **Change Flow Distribution:** Change Flow Distribution: Allows you to change the flow nozzle by nozzle. This is how to change nozzles from all being equal.

- **Invert Nozzle Order:** Put a checkmark in the box to invert the nozzle order. Nozzle #1 on the valve harnesses must be closest to the controller.

## Values on the right side of the screen:

- **Master Switches (Toggle ON/OFF):** A Nozzle # icon that is gray is off and will not spray.
- **Flow %:** Enter the desired percentage of total flow per nozzle to apply the amount of product as desired for the field and/or crop.
- **Tip Size:** Enter the tip sizes.
- **Duty Cycle:** This is information only. You cannot change the duty cycle values.

## Center of the screen:

- Visual representation of the sprayer—as the information changes on this screen the graphic will change to show how the sprayer will operate. **Nozzle color indicates:**
  - Gray—nozzle off
  - Green—nozzle on and the settings are within the system parameters
  - Red—not within system parameters and changes must be made for the system to function

**NOTE:** Nozzle line length is proportional to the flow—the longer the line the greater the flow.

Profile Name:

Rate (gpa):

Speed (mph):

Row Spacing (feet):

Tip Size:

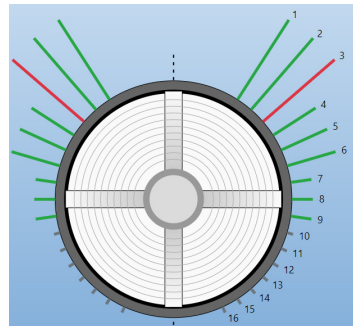
Pressure (psi):

Density (lbs/gal):

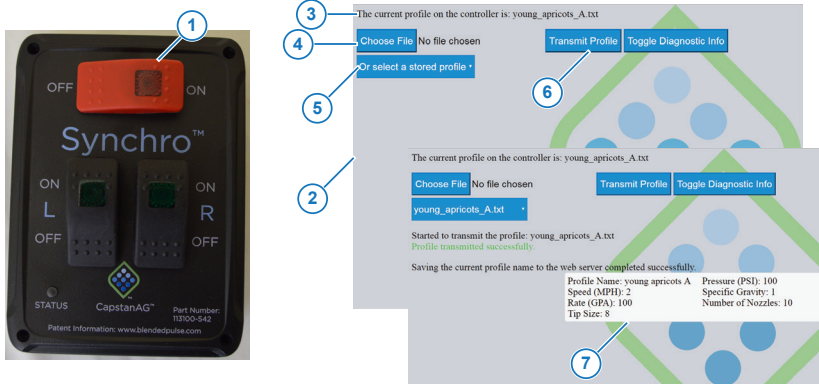
Frequency (Hz):

Multiple Tip Sizes  
 Show Nozzle Duty Cycle  
 Change Flow Distribution  
 Invert Nozzle Order

Toggle ON/OFF	Flow %	Tip Size	Duty Cycle
Nozzle 1	60	14.7	92
Nozzle 2	60	14.7	92
Nozzle 3	60	10	117
Nozzle 4	30	14.7	46
Nozzle 5	30	14.7	46
Nozzle 6	30	14.7	46
Nozzle 7	10	14.7	15
Nozzle 8	10	14.7	15
Nozzle 9	10	14.7	15
Nozzle 10	0	14.7	0
Nozzle 11	0	14.7	0



# Transfer the Profile

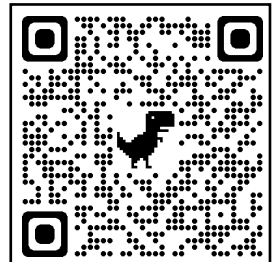


1. On the machine/sprayer, toggle the **Synchro** switch (7) to on.
  2. On your computer or tablet, connect to the **Synchro 209XXXX Wi-Fi**.
    - There is no password for this Wi-Fi connection.
  3. Open a web browser and go to [192.168.0.1/transmit.html](http://192.168.0.1/transmit.html).
    - The top line (3) will always show the active profile.
  4. If you have made a new profile, click **Choose File** (4) and find the correct profile.
    - The selected file name will show on the screen.
  5. To load a saved profile, use the **Or select a stored profile** dropdown menu (5) to select desired profile to load.
  6. Click **Transmit Profile** (6).
    - As the profile is sent to the controller, **Profile transmission started** will show on the screen. When the transmission is successful a green **Profile transmitted successfully** will show.
    - Once transmitted, the profile is stored on controller and available to reload at a later date.
- NOTE:** The settings for the selected profile will be show on the screen (7).
- NOTE:** Once a profile is transmitted to the controller it cannot be deleted.
- However, a profile can be overwritten by another file with the exact same name.
7. If there is any **red text** on the screen, an error in the transmission communication has occurred.
    - Move closer to the controller and click **Transmit Profile** again.
  8. You are now ready to spray.

## Operator Manual Page References

- Page 25—Clean the Nozzle Valve(s)
- Page 27-35—Troubleshooting
- Page 32-33—System Tests
- Page 37—System Schematics

QR Code takes you to the product webpage



# Spray with Synchro™

1. Get the sprayer ready for operation.
2. Make sure that the controller **Synchro** switch (7) is ON when ready to spray.
3. Toggle on the boom switch(es) (2).

**IMPORTANT:** If the sprayer pump is on toggling the boom switches may apply product. You can use the **L** (left) and **R** (right) side of the sprayer separately or together.

4. Operate the sprayer.
5. When you are done spraying, toggle the boom switch(es) and the **Synchro** switch off.

**IMPORTANT:** If any switch is ON, the system will still pull a current that can drain the battery.

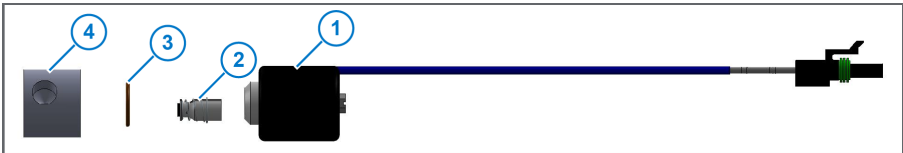


## Manual Mode

If one or both boom switches are ON but the **Synchro** switch is OFF, the system will operate with a constant equal flow of product through all nozzles and not use the profile parameters. The sprayer will function as it would without the CapstanAG system. This can be used to flush the system out, or can be used to spray conventionally, especially during a failure.

## How to Test a Coil

1. Turn your multimeter to Ohms  $\Omega$ .
2. Unplug the coil from the VCM and put the multimeter leads into each side of the 2-pin plug.
  - A good coil should show a reading between 10 and 11.5 Ohms  $\Omega$ .
3. If it tests outside of this range the coil needs to be replaced.
4. If the valve is not working, but the coil tests good, you can take the valve assembly apart and clean it.



Callout	Description	Part Number	Callout	Description	Part Number
1	Coil	625147-011	3	O-ring	715022-204
2	Plunger	716009-111	4	Valve Body	621083-001
<b>Entire Assembly P/N   All Parts Available Separately</b>					