APPLI-PRO® *Intell*

Super Low Volume Application System

Intell Operation

DUPONT

PIONEER

CE

DECLARATION OF INCORPORATION FOR A PARTIALLY COMPLETED MACHINE: Pioneer Appli-Pro® Intell System.

MANUFACTURER: Harvest Tec, Inc., 2821 Harvey St, P.O. Box 63, Hudson, WI, 54016, U.S.A.

MACHINE DESCRIPTION: An implement mounted machine that applies inoculants to forage crops.

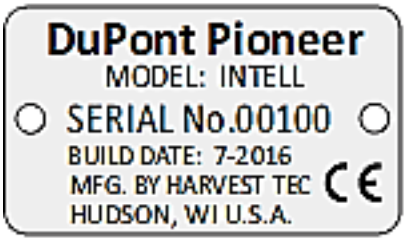
DECLARATION OF APPLICATION OF ESSENTIAL REQUIREMENTS OF THE DIRECTIVE 2006/42/ EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL OF 17, MAY, 2006 AND OTHER RELEVANT EU DIRECTIVES: The Pioneer Appli-Pro® Intell System conforms with this Directive and other relevant EU directives.

SERVICE DUTY OF THE PARTIALLY COMPLETED MACHINE: The Pioneer Appli-Pro® Intell System will only be put into service after installed on a forage harvester that has been declared to conform with the Directive.

Noise from the Pioneer Appli-Pro® Intell System does not exceed 70 dB (A).

MANUFACTURERS NAME PLATE

(*sample name plate*)



PERSON AUTHORIZED TO PROVIDE INFORMATION ON THE MACHINE AND WHO MAKES THIS DECLARATION:

Jeffery S. Roberts, President, Harvest Tec, Inc.

Signed in Hudson, WI, USA on May 21, 2011

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Introduction

The **Appli-Pro® SLV Intell (Super Low Volume Tank Mix) Application System** was built for DuPont Pioneer by a leading agricultural manufacturer. The Intell is an integrated system, designed and calibrated specifically for Pioneer® brand products. The Intell system now interfaces through an iPad allowing advanced display capabilities, as well as enhanced product features.

This unique system was developed to offer you the following advantages:

- Increased efficiency resulting from fewer stops due to switching bottles.
- Unique back-flush system makes cleaning easy.
- Basic product delivery system is identical to SLV which provides excellent rate and distribution based on SLV experience.
- Improved cleanout by now having the ability to remove the tank.
- Dedicated compressor air intake for prolonged compressor life.
- iPad controlled
- System calibrates itself during priming sequence

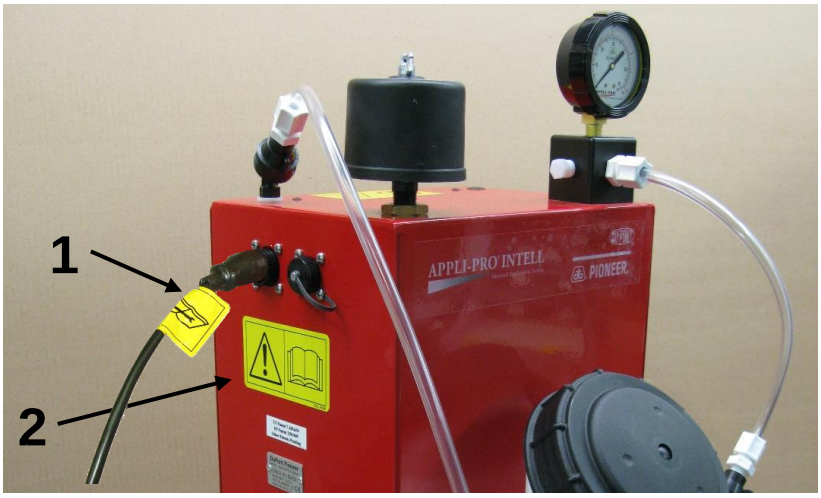
Safety

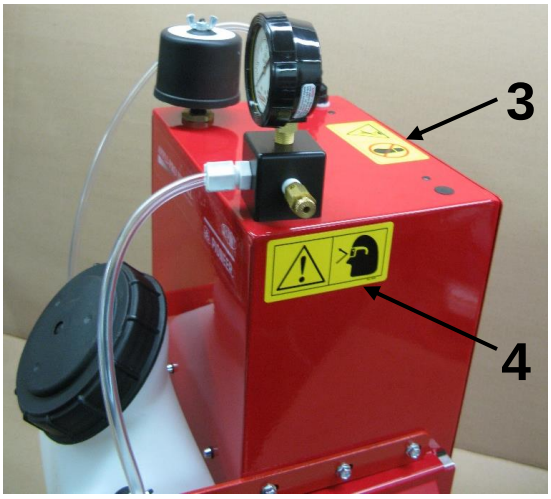
Carefully read all the safety signs in this manual and on the applicator before use. Keep signs clean and in good working order. Replace missing or damaged safety signs. Replacement signs are available from your local authorized dealer. See your installation manual or on the next page for the correct part numbers.

Keep your applicator in proper working condition. Unauthorized modifications to the applicator may impair the function and/or safety of the machine.

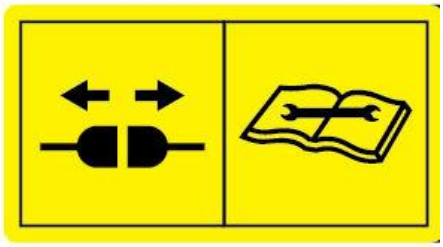
Carefully read and understand all of the applicator safety signs before installing or servicing the applicator. Always use the supplied safety equipment on the forage harvester to service the applicator.

Safety Sign Locations





Safety Signs



Number 1
Spraying hazard. Disconnect power before servicing the applicator
Part no. DCL-8003

Number 2
Read and understand the operator's manual before using or working around the equipment.
Part no. DCL-8000

Number 3
Falling hazard. Do Not Step in this area.
Part no. DCL-8002

Number 4
Eye protection. Pressure Relief Valve.
Part no. DCL-8005

iPad Operation

Turn On / Off iPad using the Sleep/Wake button

*(Info from Apple User's Guide)

Turn iPad on. Hold down the Sleep/Wake button until Apple logo appears. iPad will take a moment to load.

You can lock iPad and put it to sleep when you're not using it. Locking iPad puts the display to sleep, saves the battery, and prevents anything from happening if you touch the screen.

When you are not going to use the iPad for an extended period of time put the unit into sleep mode by pressing the Sleep/Wake button. Press Sleep/Wake button to wake iPad and then unlock iPad.

Turn iPad off. Hold down the Sleep/Wake button for a few seconds until the slider appears onscreen, then drag the slider to the right.

Shutting Down the Intell App

1. To shut down the Intell app double click the home button (Figure A). This will show the open apps that are running on your iPad (Figure B).
   *Note: By pressing the home button one time to return to the home screen, the Intell app does not shut down. The system will however, stop applying product after 10 seconds.

Figure A

2. Terminate the desired app by sliding the app toward the top of the iPad, until the app is no longer visible (Figure C).

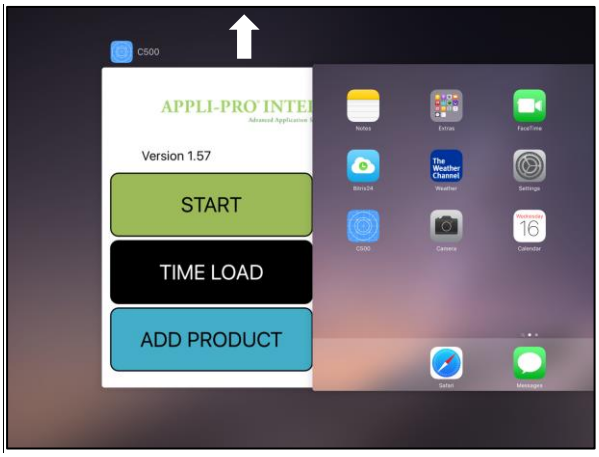


Figure B

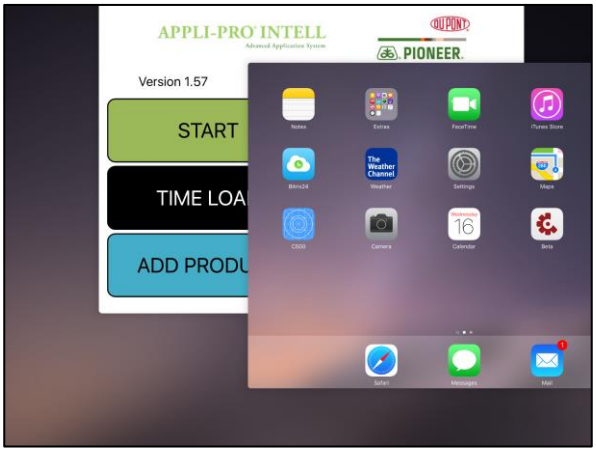
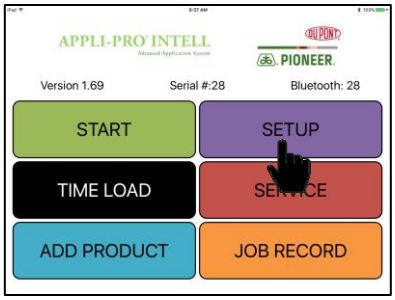
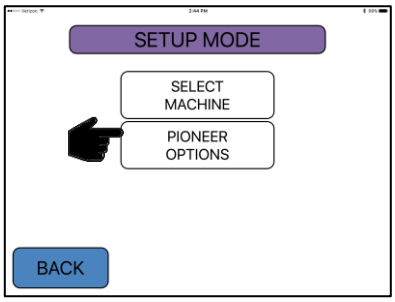


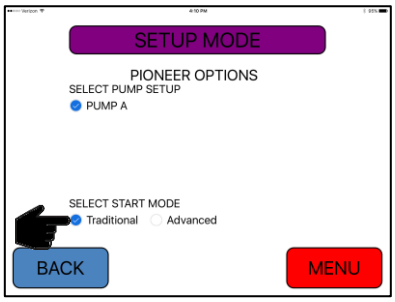
Figure C

Selecting Traditional or Advanced Screen Operation

By using the Intell iPad system you now have the ability to use the system with either the Traditional screens, or the Advanced screens. The screens below illustrate how to select your desired mode.

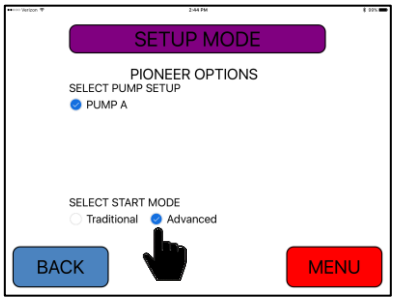




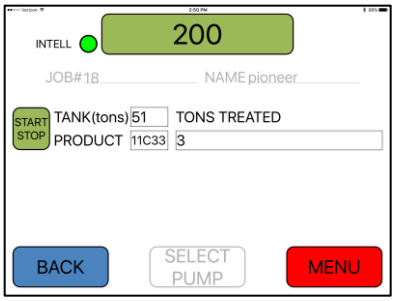


Select Traditional Mode

Traditional screen operation display

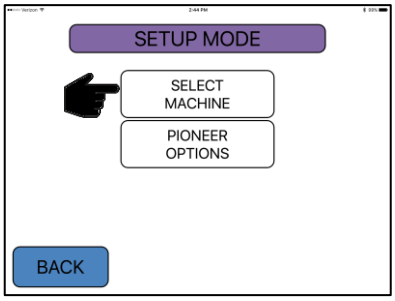


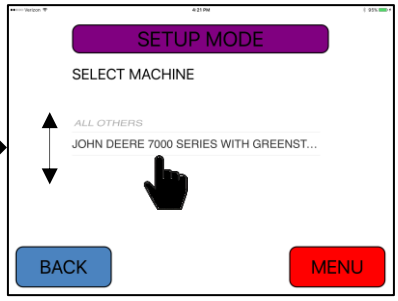
Select Advanced Mode



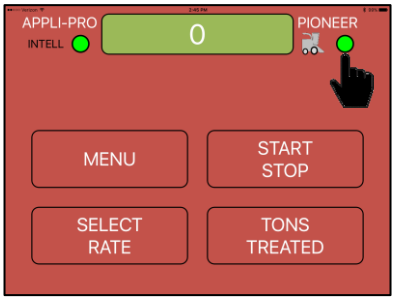
Advanced screen operation display

Selecting John Deere Harvester for Greenstar Mode

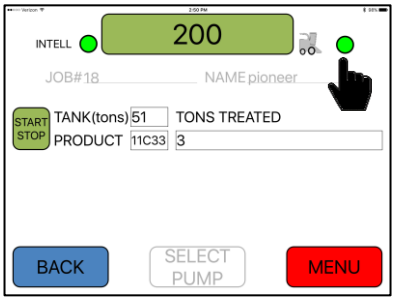




Select John Deere machine

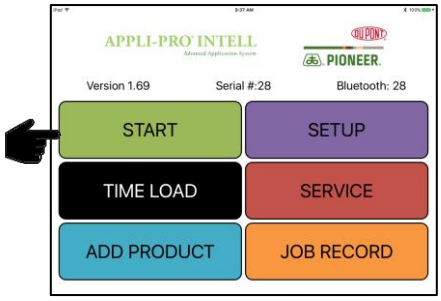


Green light when connected (Traditional)

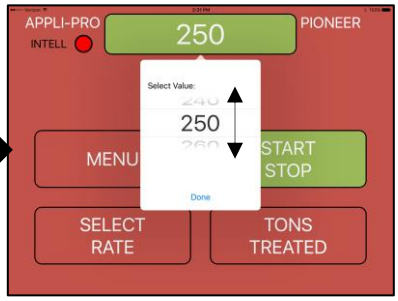


Green light when connected (Advanced)

Traditional Screens Operation

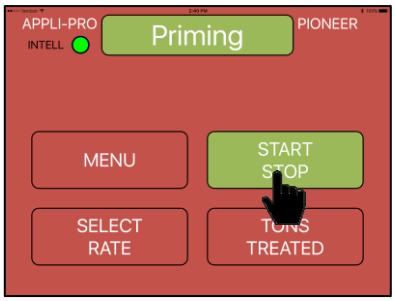


Select rate of tons per hour

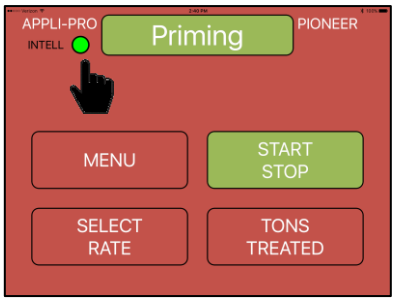


Select correct rate or use the Time Load function

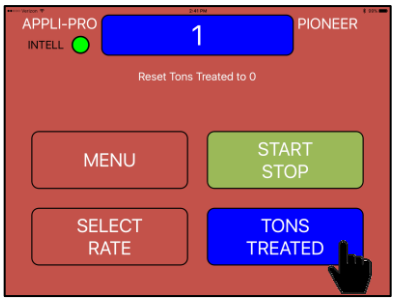
Screen Details



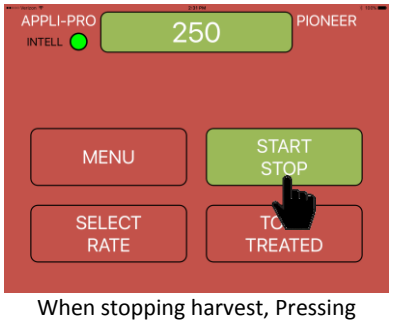
Pressing Start/Stop will begin Priming



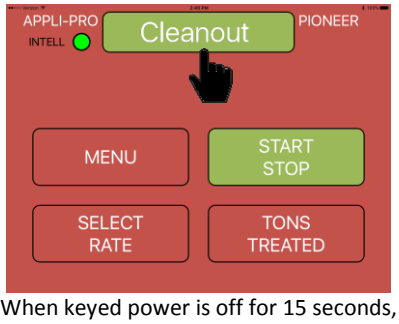
The Green status light next to Intell indicates the system is now connected (see more status light info below)



Selecting Tons Treated will display how many tons of crop have been treated



When stopping harvest, Pressing Start/Stop will stop application

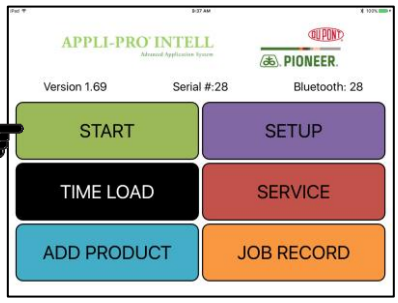


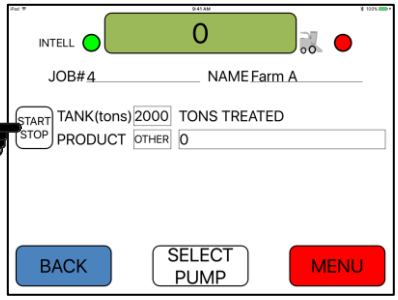
When keyed power is off for 15 seconds, Cleanout process automatically begins

Status Light

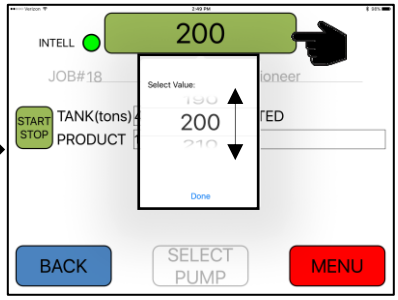
- **Green** – System is connected and working properly
- **Yellow** – System experiencing communication trouble. Reset the app by double clicking home button and swiping up to terminate the app.
- **Red** – System has lost connection

Advanced Screens Operation

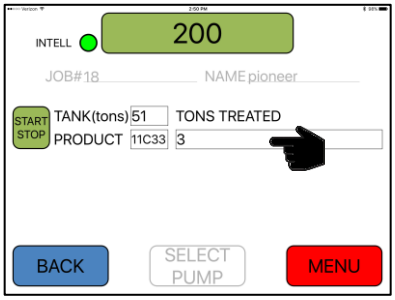




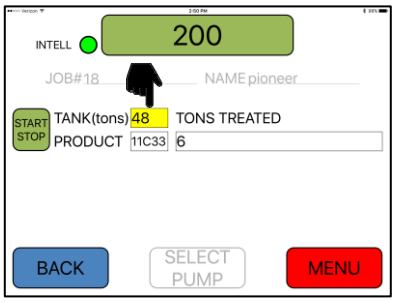
Select the Start/Stop button
*Button will turn green when activated



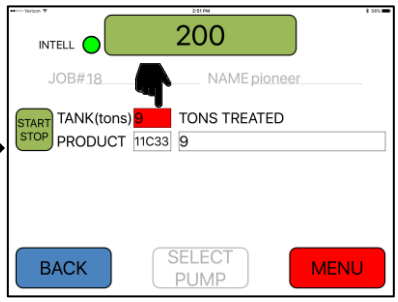
To adjust tonnage press the green display



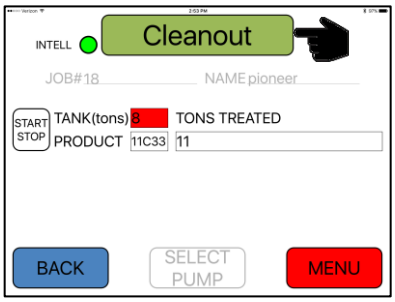
Remaining tank (tons) and tons treated will display in middle of page



When remaining product is below 50, the box will turn yellow



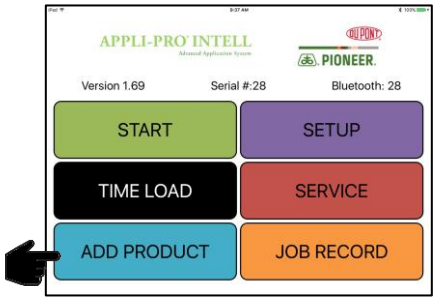
When remaining product is below 10, the box will turn red

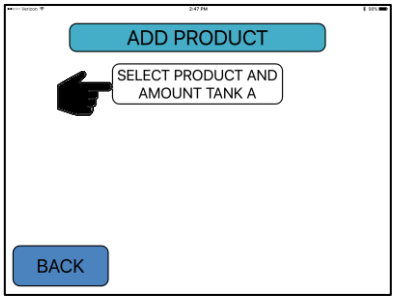


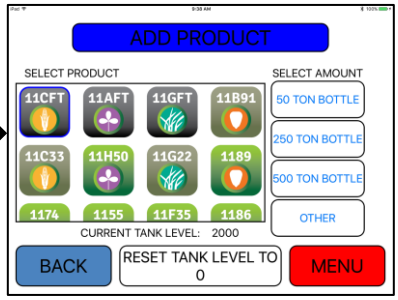
When keyed power has been off for 15 seconds, Cleanout begins automatically

Add Product

By operating your system in the Advanced mode, you now have the ability to select the specific product being used. The screens below illustrate how to select the correct product.
*You do not need to choose a product to operate the system.

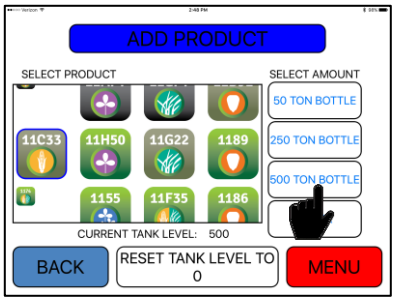






Select Product

When selecting product,
a confirmation prompt will appear

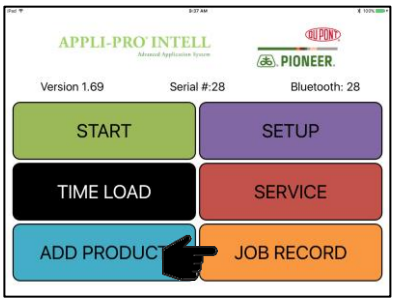


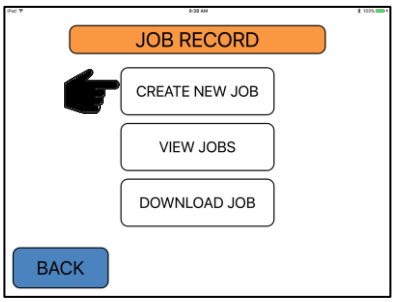
Select correct bottle size

If the correct size has been selected,
confirm by pressing Yes

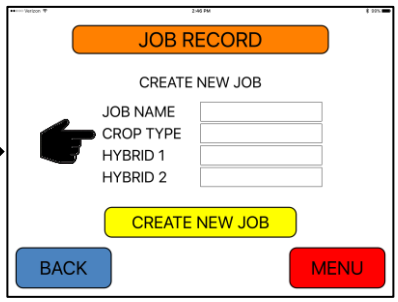
Job Record

When using the advanced mode, the system now has the ability to store job records. The screens below illustrate how to use the job record function.

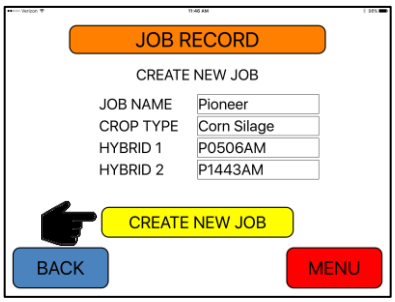




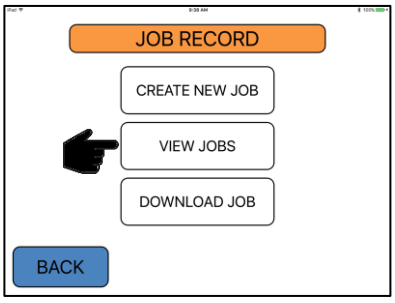
Select Create New Job



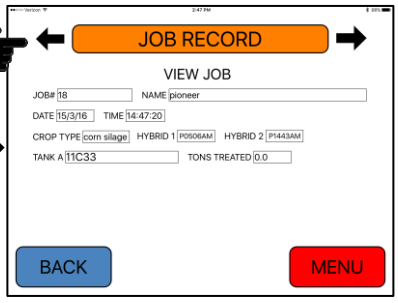
Enter information into job record



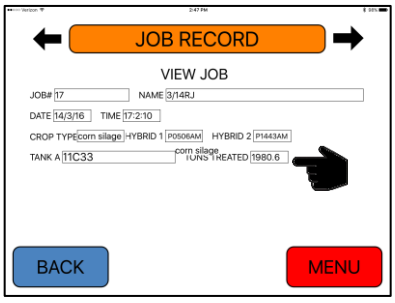
Select Create New Job



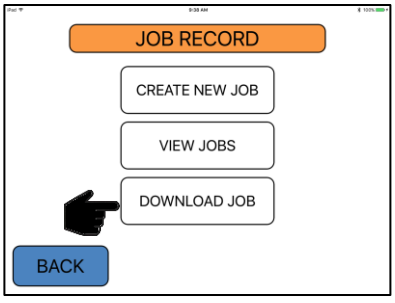
Select View Jobs



Change job record being viewed by selecting left or right arrow

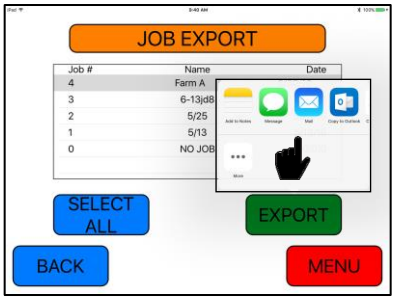


Tons treated will display on screen



Select Download Job

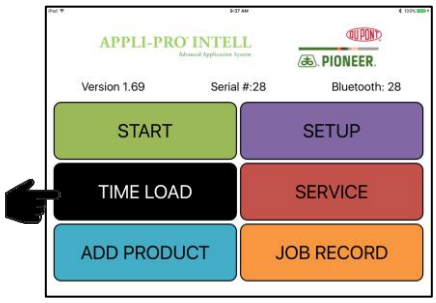
Choose desired jobs to download and press the Export button

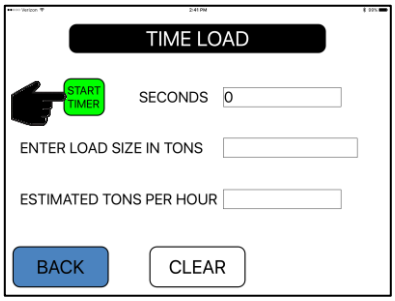


Select your desired way of downloading the job records

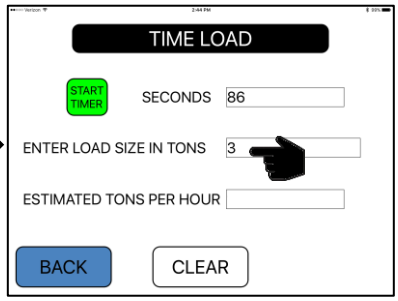
Time Load

This feature is available to assist in recording the time needed to complete a load, and calculate the tonnage. The below screen illustrate the time load function

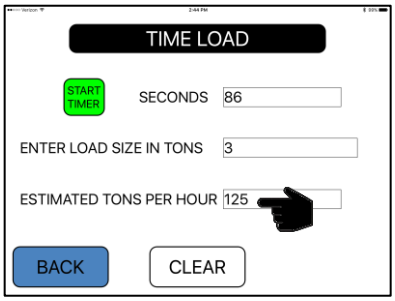




Press Start Timer when starting load
*Button will be green when selected



*When load is finished, enter correct value in the above line



Estimated Tons Per Hour will calculate

Step-by-step Process

1. Press the Start/Stop timer, to begin timer.

2. Return to main menu and press start to activate the system.
    a. The timer will only count time when the unit is not paused for end of row or in main menu.

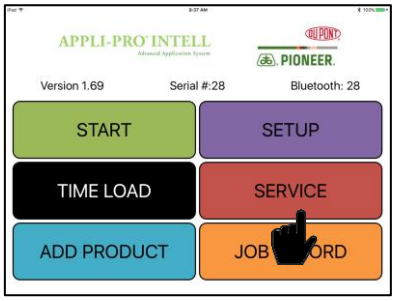
3. When the load is complete, return to the Time Load screen page and press the Start/Stop button.
    a. The seconds needed to complete the load will display

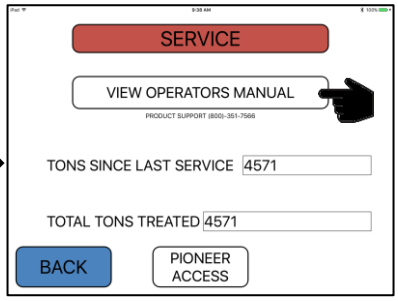
4. The operator then enters the load size harvested into the Time Load screen.

5. The estimated tons per hour is then calculated and displayed on the bottom line.

6. The operator can then adjust the systems application by inputting this rate into the operation screen

Service





To view the operators manual select the tab shown above

Routine Service and Maintenance

Tools Needed

- Metric socket & metric wrenches
- Philips and flat screwdriver
- 1/4" nut driver
- Hose cutter
- Pliers & Utility knife
- Bleach or OxiClean & Dishwasher soap

Daily Maintenance

- Flush with clean water for 15 Min. daily when finished with harvester for the day.
- Filters – Clean pre-filter on top of applicator and tower filters daily with compressed air.
- Tubes – Check hose between tower and tip weekly for damage or wear.
- Screens – Clean screens daily with hot water or as necessary.

Yearly Maintenance

- Squeeze tube – Replace squeeze tube at the beginning of each season (002-9011→ 30 Inches).
    - To replace the squeeze tube; the four front screws need to be removed from the pump. Remove the old tube and place one side of the tube through the top hole leaving an 8-inch section out of the tube. Use the supplied key to gently roll the tube into the pump and though the opposite top opening. Reinstall the four screws and install on the motor.
- Tip – Replace tip and screens at the beginning of each season.
- Check calibration.
- Remove foam filters and wash with a warm soap solution. Let filters air dry before reassembling.
- A maintenance kit containing these parts will be provided by Pioneer annually.

Winter Storage

1. Clean Intell tubes (See CLEANING THE INTELLTUBES).
2. Run Unit for 5 minutes at 400 ton/hr with the tank empty.
3. Remove back cover and look for trapped fluid in the lines. Remove and drain lines if fluid is present.
4. Apply Di-Electric grease to all plugs on the tower, cables, and control box.
5. Put iPad in a clean dry place.
6. Do not use automotive or RV style antifreeze for winterizing

Cold Weather Operation

If using the applicator during potentially freezing weather (e.g., harvesting high-moisture corn), the addition of a 100% solution of propylene glycol will prevent the inoculant solution from freezing without harming the bacteria.

The table below shows harvest air temperatures and the **recommended amount of 100% propylene glycol to add per 50 tons harvested.** After adding the propylene glycol, top off with water to recommended capacity (50-ton bottle). Obviously, propylene glycol is not a practical alternative for extremely cold operating conditions. RV antifreeze will be your easiest and cheapest source of propylene glycol. It must be factored in that most RV antifreeze products contain only a percentage of propylene glycol. **For example, if the RV antifreeze label shows 25% propylene glycol, you must multiply the recommendations below by 4. At 10° F, you will be using straight RV antifreeze, as the dissolving, carrier solution, if the RV antifreeze contains only 25% propylene glycol.**

Temperature ˚F	Per 50 tons
30˚F	25ml (.84 oz)
25˚F	50ml (1.7 oz)
20˚F	100ml (3.4 oz)
10˚F	125ml (4.2 oz)

Cleaning the Intell Tubes

Some organisms that can be found in well water will grow on the carrier used in Pioneer brand water-soluble inoculant products. The amount of growth is influenced by the amount of bugs in the water, the temperature, and the length of time the bugs are allowed to grow. A good rule of thumb to follow is that the rate of growth doubles for every 10-degree increase, so the hotter temperatures will promote faster growth.
FLUSH WITH WATER DAILY.

Flushing with Water Instructions

1. Shutdown applicator, allow Cleanout cycle to complete.

2. Disconnect hoses between tank and applicator. Remove the tank and transfer unused product into supplied mixing bottle for refrigeration or freezing.

3. Fill the tank with fresh water and reconnect hoses.

4. Set IPad to **Traditional Mode** and adjust rate to 400 tons per hour.

5. Start harvester and allow applicator to power up.

6. Allow Intell to operate for 5-10 minutes.

7. Shutdown harvester to allow applicator to proceed with clean out function.

Cleaning the tubes in-between Cuttings and End of Season

1. It is very important to clean the Intell in-between cuttings and at the end of the growing season. Doing this will help keep the system free of plugged lines and clogged tips. While the cleaning process can take about one hour, when done concurrently with other equipment maintenance, the time investment is minimal, and the process can mean saving much additional time later

2. With a clean and empty tank place 2-3 tablespoons of (5% chlorine bleach) into the tank and fill with one gallon of warm water. ***OR*** *you can use a product called* OXICLEAN. *Use the directions for soaking solution that are on the package. Remember to use very warm water when mixing. Make sure it is all dissolved before running the machine.*
    a. Set the iPad to the Traditional screen.

3. Set control box to 400 tons per hour and run unit at this speed for 25-35 minutes or until solution is gone. *You may want to remove nozzle strap assembly from the harvester and place in a five-gallon pail and cover the pail to prevent the mist from getting on the harvester.*

4. Remove the tank and rinse thoroughly. Fill the tank with one gallon of clean warm water. Attach to the Intell. Run the system at 400 tons per hour for another 25-35 minutes or until water is gone.

5. Turn off system and let it run the clean out function. This will blow any remaining fluid out of the lines. Remove tank and dump any remaining fluid out. Place the tank back on the Intell.

6. Physically inspect the line that runs from the Intell to the nozzle strap for trapped water. Remove the line strainer bowl, dump fluid, reinstall bowl.

Troubleshooting

Symptom	Possible Cause	
Squeeze Pump does not start	Fault in wiring	
Squeeze Pump will not prime	Air leak in intake Faulty wiring	Plugged suction line
Squeeze Pump runs but does not pump product	Pump hose is broke	Plugged suction line
Gauge Pressure is ABOVE 30 psi	Plugged spray tip or filter Line restriction	Brass Pop-off valve is stuck
Gauge Pressure is BELOW 20 psi	Tip Missing Strainer bowl screen is plugged Broken hose Hose blown off line Faulty connection to power supply	Fault in wiring to injector pump Plugged intake filters Worn compressor Compressor head needs rebuild kit Corroded terminals or a bad connection can cause this
Control displays MORE tons treated than product used	Clog in injection line Fault in wiring to injection pump Bad injection pump Faulty injection pump motor Clog in breather tube Build up in output line	Partially plugged spray tip Leaking bottle acceptor assembly Faulty injector pump motor Partially clogged spray tip
Control displays LESS tons treated than product used	Bad injection pump tubing Worn or damaged squeeze pump tubing Fault in wiring	Leak in breather tube or bottle Faulty injection pump motor
Intell does not spray out the tip during cleanout cycle	Plugged tip Plugged inline filer	Buildup in 1/4" hose
Control shuts off without going through cleanout cycle	Power connected to keyed source Faulty wiring harness	Faulty control
Intell will not apply when control is in normal operating mode	Faulty wiring harness Faulty compressor or injector pump wiring	
Applicator does not apply when using the end of row option	Faulty wiring harness Faulty injector pump wiring Faulty control box Blown fuse on harvester	No signal from machine Machine's head is not in the lowered position Machine is not moving forward Check for voltage at green wire while harvester is operating.
Bubbles in tank during prime cycle.	Squeeze pump wiring is reversed.	Squeeze pump tubing is reversed.
Compressor will not build pressure	Plugged intake filters Plugged pre-filter Air leak in hose connections Broken hose	Dirt in compressor Squeeze pump tubing has blown out of compression fitting
Blowing 15 amp in-line fuse	Faulty wiring harness Faulty control box Bad connection to battery Air compressor filters plugged	Plugged spray tip Pop-off valve adjusted incorrectly Faulty air compressor
Call for Further Assistance	During Normal Business Hours 1-877-Pioneer (746-6337) ext. 82526	After Hours or Weekends 1-765-437-7211

Plug Diagrams

Intell Large Tower Plug (To Main Harness 006-4524M)

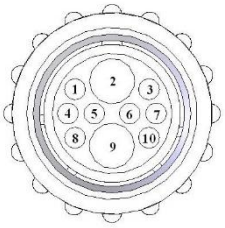
Pin 1	Red / White	Bluetooth Box Power
Pin 2	Red	Main Control Power
Pin 3	Orange	Keyed Switch
Pin 4	N/A	Not Used
Pin 5	Green	Bluetooth Can Low
Pin 6	Yellow	Bluetooth Can High
Pin 7	Red / Black	12 Volt Power for Whisker Switch
Pin 8	Black / White	Bluetooth Box Ground
Pin 9	Black	Main Control Ground
Pin 10	Green	End of Row

Intell Small Tower Plug (Machine Interface)

Pin 1	N/A	Not Used
Pin 2	Black / White	RS232 Ground
Pin 3	Orange	Can High
Pin 4	Blue	RS232 Transmit (TX)
Pin 5	Blue	Can Low
Pin 6	Red	RS232 Receive (RX)
Pin 7	N/A	Not Used

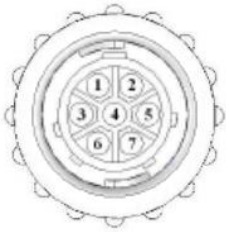
Intell Main Wire Harness 006-4524M (Tower End)

Pin 1	Red / White	Bluetooth Box Power
Pin 2	Red	Main Control Power
Pin 3	Orange	Keyed Switch
Pin 4	N/A	Not Used
Pin 5	Green	Bluetooth Can Low
Pin 6	Yellow	Bluetooth Can High
Pin 7	Red / Black	12 Volt Power for Whisker Switch (pigtail)
Pin 8	Black / White	Bluetooth Box Ground
Pin 9	Black	Main Control Ground
Pin 10	Green	End of Row (pigtail)



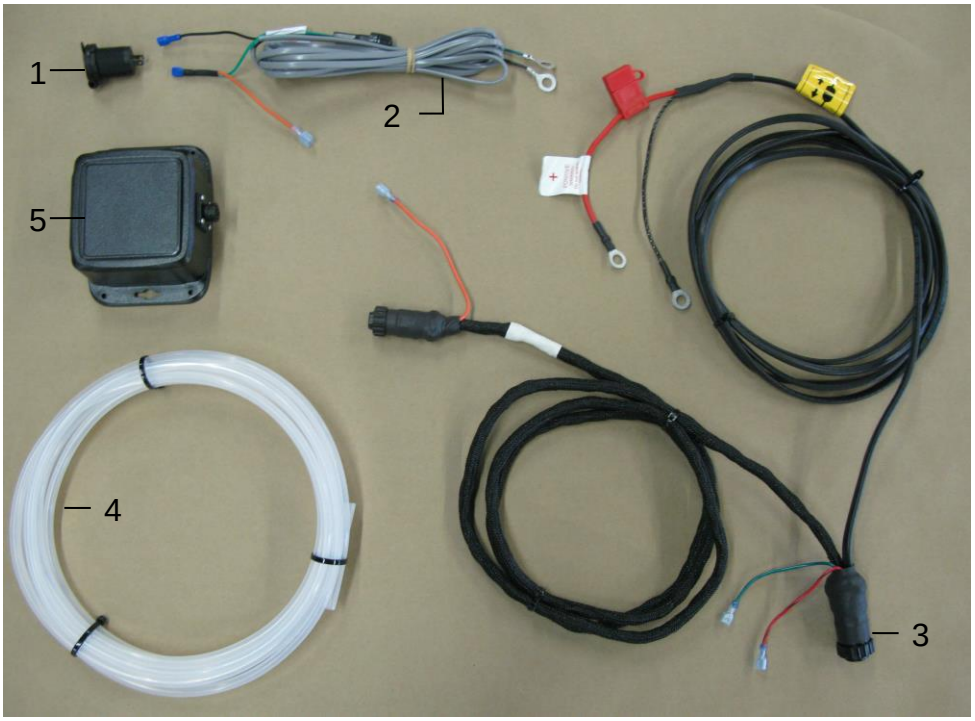
Intell Main Wire Harness 006-4524M (Bluetooth Cab End)

Pin 1	N/A	Not Used
Pin 2	Black / White	RS232 Ground
Pin 3	Orange	Can High
Pin 4	Blue	RS232 Transmit (TX)
Pin 5	Blue	Can Low
Pin 6	Red	RS232 Receive (RX)
Pin 7	N/A	Not Used



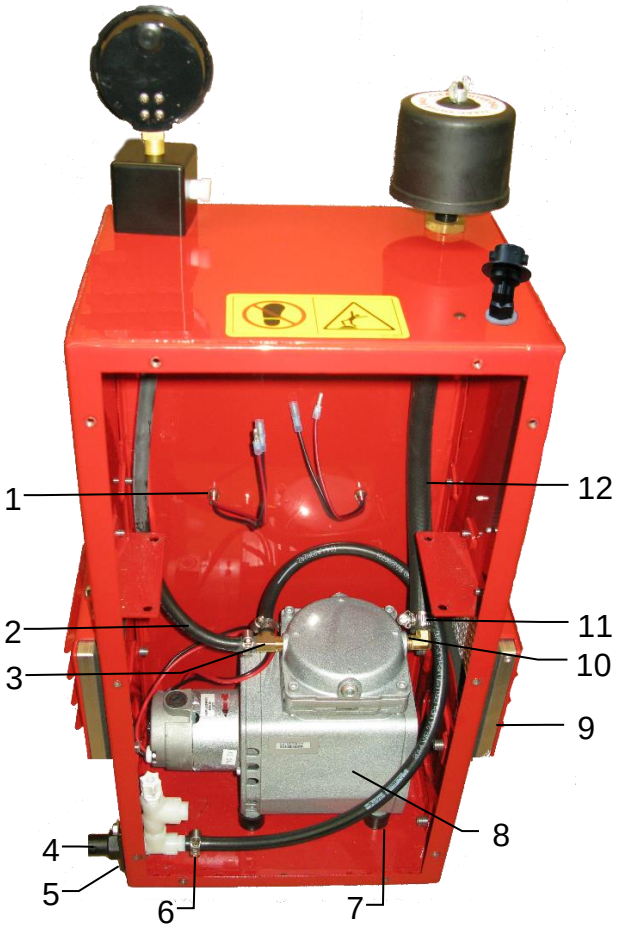
Intell Parts Breakdown

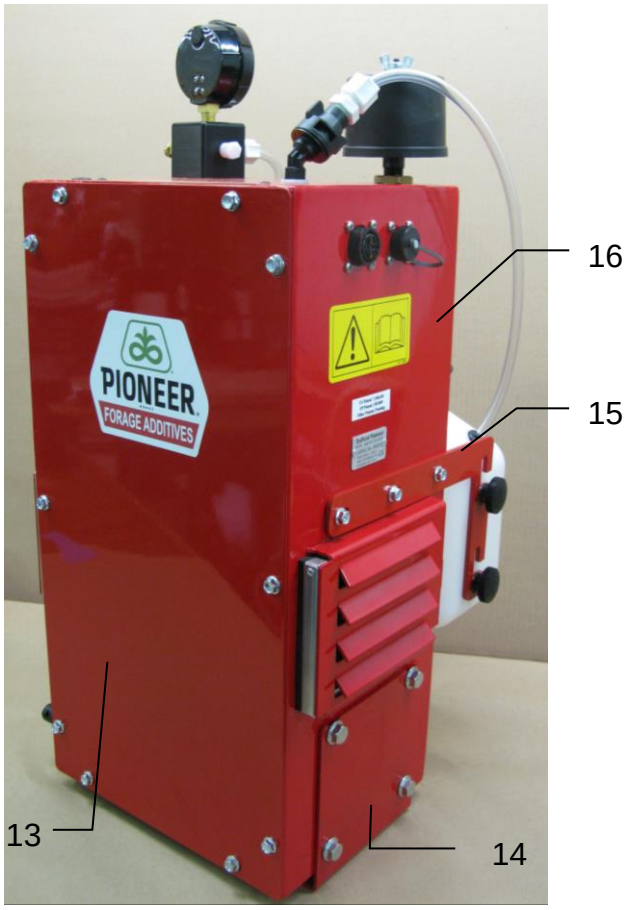
Wires, Electronics, Hoses



Ref#	Description	Part #	Qty
1	iPad Mini 12V Charger	001-2012P	1
2	Charger & Keyed Switch Harness	006-4723P	1
3	Power/Comm Harness	006-4524M	1
4	1/4" EVA Tubing	002-9006	20
5	600 Series Bluetooth Receiver	006-6672P	1

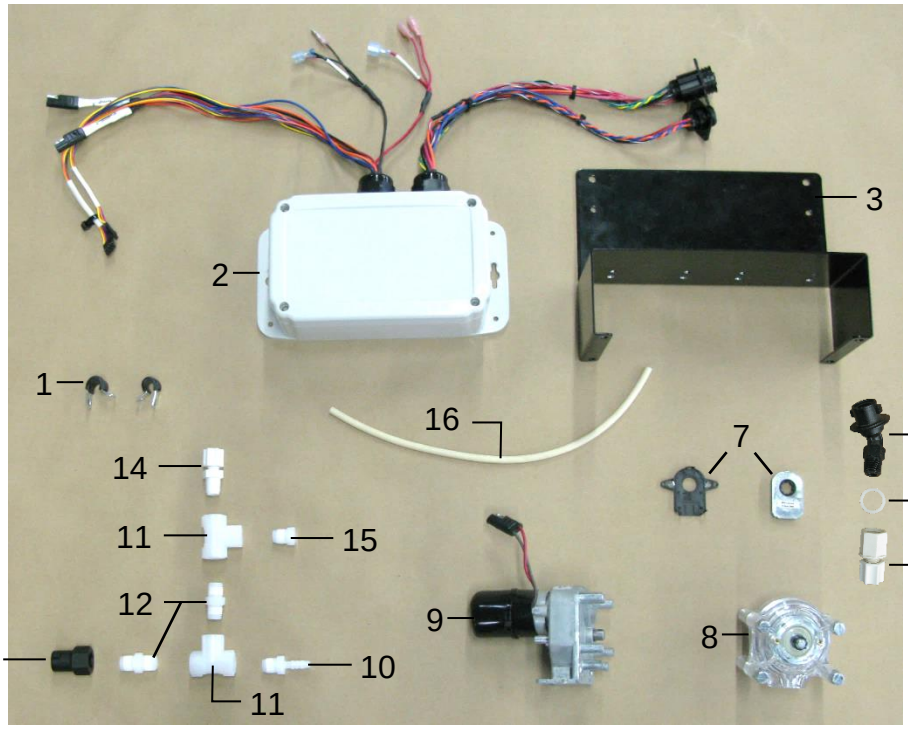
Main Unit





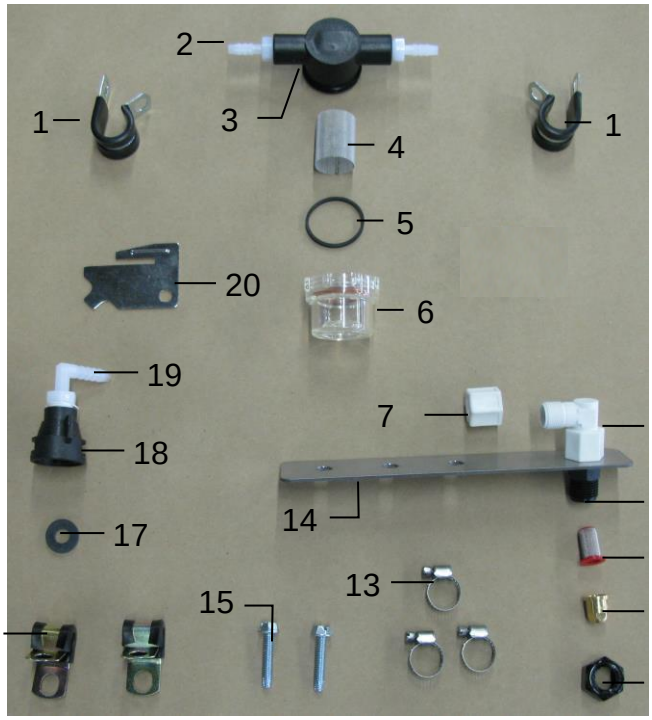
Ref#	Description	Part #	Qty
1	Green LED Light	006-4524L	2
2	1/4" Compressor Hose	002-9012	3.6 ft
3	1/4" x 1/4” Tee Brass	003-T1414TB	1
4	1/4" Female Fitting	004-1207G	2
5	1207G Stops Black	001-4594	1
6	Mini Hose Clamp	003-9002	4
7	Compressor Mount	007-4530M	4
8	SLV Compressor	007-4530	1
9	SLV Air Filter	002-4521	2
10	1/4" x 1/2" Elbow Brass	003-EL1412B	1
11	#10 Hose Clamp	003-9004	2
12	1/2" Compressor Hose	002-9000	1.16 ft
13	Back Cover	001-4596C	1
14	Mounting Bracket	001-4582	1
15	Bottle Straps	001-4593	2
16	Intell Tower Enclosure	001-4596T	1

Pump Plate



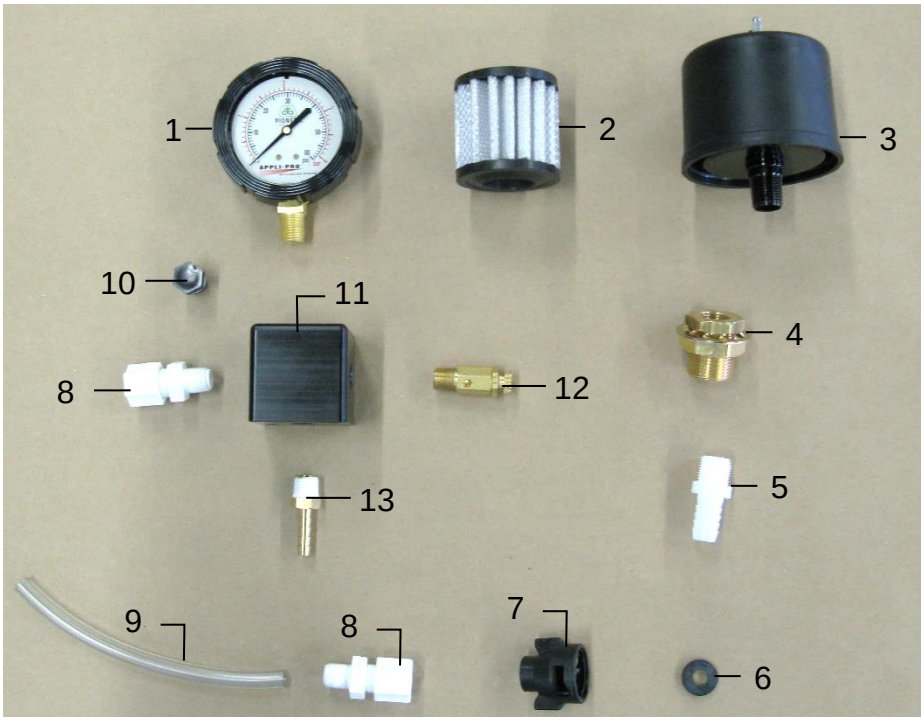
Ref#	Description	Part #	Qty
1	3/8” Jiffy Clip	008-9012	2
2	Intell Control Box	006-3671P	1
3	Intell Pump Mount	001-4596D	1
4	45 Deg. Male Connect	004-4710K	1
5	Nylon Washer	HDR-W-4720-NYL	1
6	1/4" x 1/8” Jaco Fitting	003-JU1418F	1
7	Encoder	007-4511E	1
8	SLV Injection Pump	007-4533B	1
9	SLV Injection Motor	007-4533A	1
10	1/4" x 1/4" Straight Fitting	003-A1414	1
11	1/4" Tee	003-TT14	2
12	1/4" x 1/4" Nipple	003-M1414	2
13	1/4" Female Quick Connect	004-1207G	1
14	1/8” x 1/4" Jaco Straight Fitting	003-JA1814	2
15	Hex Plug	003-F14	1
16	1/8” SLV Squeeze Tubing	002-9011	2.5 ft

Parts Bag



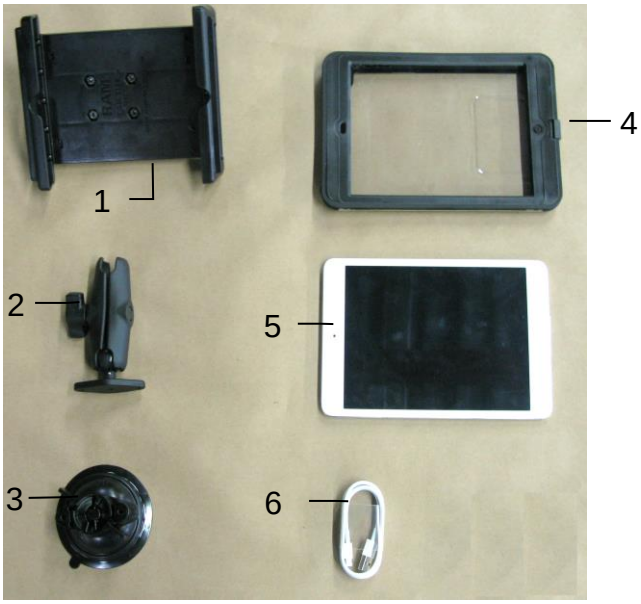
Ref#	Description	Part #	Qty
1	3/4" Jiffy Clip	008-9010	2
2	1/4” x 1/4" Straight Fitting	003-A1414	2
3	SLV Bowl Filter Complete	002-4314	1
4	SLV Filter Screen	002-4314S	1
5	SLV Filter Gasket	002-4314G	1
6	SLV Filter Bowl	002-4314B	1
7	Jaco Nut	003-JN14	1
8	Jaco Fitting	003-JEL1414F	1
9	Nozzle Body	004-4722	1
10	Tip Strainer	004-1203-50	1
11	Tip	004-TX-10	1
12	Nozzle Cap	004-4723	1
13	Mini Hose Clamp	003-9002	3
14	Nozzle Holder	001-4216	1
15	1/4” x 1 1/4" Self-Tapping	HDR-TC-025-0125	2
16	3/8” Jiffy Clip	008-9012	2
17	Washer	004-1207W	1
18	1/4" Female Disconnect	004-1207H	1
19	1/4" x 1/4" Elbow	003-EL1414	1
20	Tube Installation Tool	007-4523	1

Air Manifold & Pre-Filter



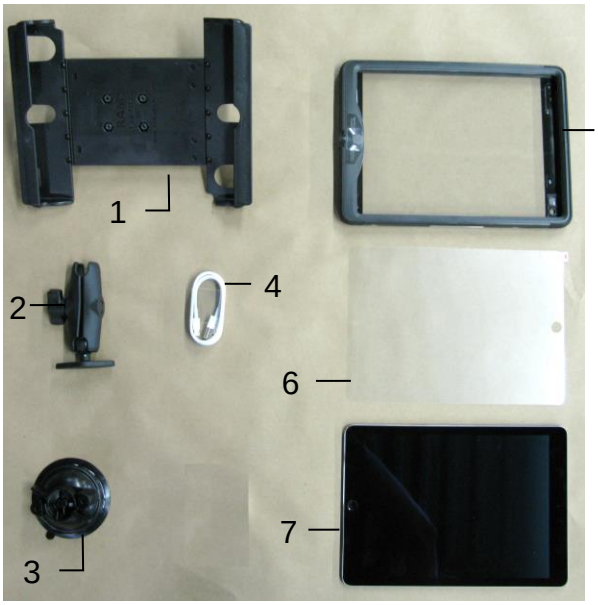
Ref#	Description	Part #	Qty
1	Pioneer Gauge	002-2207P	1
2	Intake Filter Element	002-4522E	1
3	SLV Air Intake Complete	002-4522	1
4	3/8” Bulk Head Fitting	005-9101B	1
5	3/8” x 1/2" Fitting	003-A3812	1
6	Washer	004-1207W	1
7	1/4" Disconnect	004-1207H	1
8	1/4" Jaco Fitting	003-JA1414	2
9	1/4" PVC Tubing	002-9014	1.13ft
10	1/4" Plug	003-F14P	1
11	Intell Air Manifold	001-4596MB	1
12	Pop Off Valve	002-4520	1
13	1/4" Straight Fitting Brass	003-A1414B	1

iPad Mini 2 Controls



Ref #	Description	Part #	Qty
1	Cradle for iPad Mini 2	001-2012SLC	1
2	Ram Mount	001-2012H	1
3	Suction Cup Mount	001-2012SCM	1
4	Case for iPad Mini 2	001-2012C2	1
5	iPad Mini 2	006-2670IPP	1
6	Power Cord	Comes w/ iPad	1

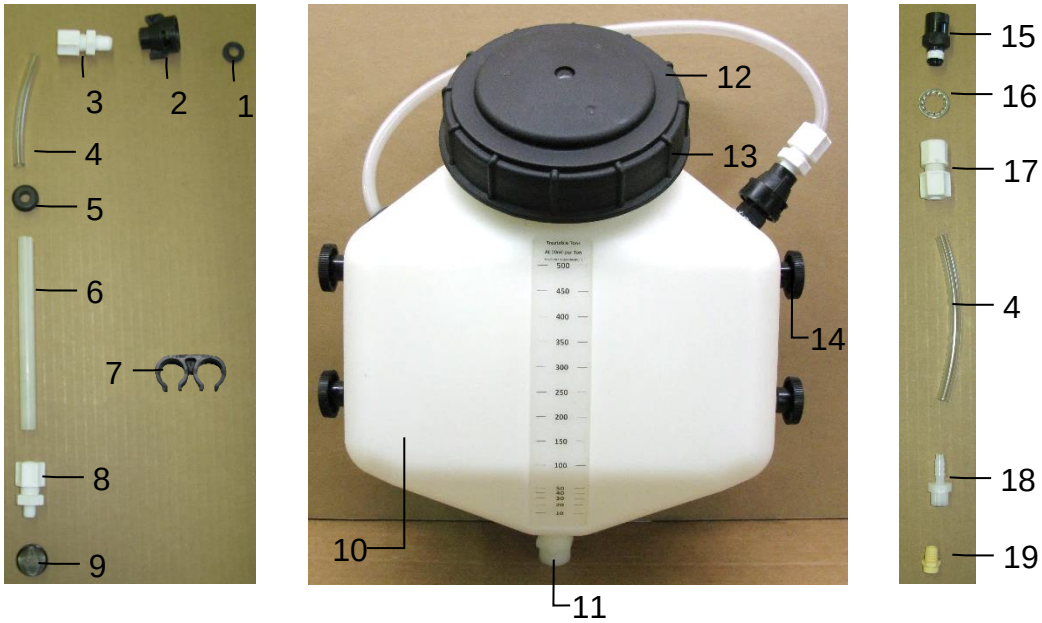
iPad Air 2 Controls



Ref #	Description	Part #	Qty
1	Cradle for iPad Air 2	001-2012SLCA	1
2	Ram Mount	001-2012H	1
3	Suction Cup Mount	001-2012SCM	1
4	Power Cord	Comes w/ iPad	1
5	Case for iPad Air 2	001-2012CA2	1
6	Screen Protector Air 2	001-2012CA2P	1
7	iPad Air 2	006-2670IPPA	1

C500-TK Parts Breakdown

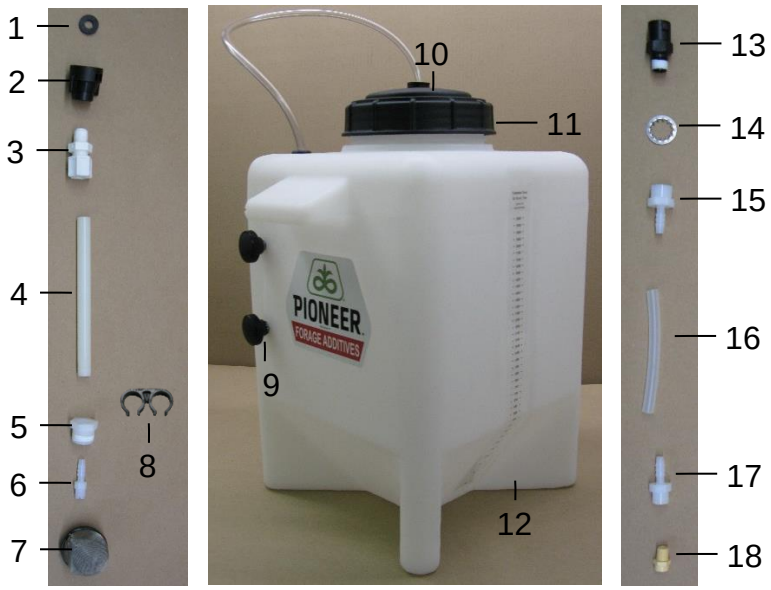
500 Treatable Ton Tank



Ref #	Description	Part #	Qty
1	Washer	004-1207W	2
2	Female Quick Connect	004-1207H	2
3	Straight 1/4" HB x 1/4” NPT	003-JA1414	3
4	1/4" PVC Tubing	002-9014	4
5	Tank Grommet	Hardware	1
6	Intake Tube	001-4542	1
7	Tube Clip	008-9004	1
8	Straight 1/4” HB x 1/8" NPT	003-A1814	1
9	Screen	002-4565	1
10	Tank 5000ML	005-9216	1
11	1/4" Allen Plug SS	003-F14A	1
12	Cap	005-9022CX	1
13	Gasket	005-9022CXG	1
14	Tank Knobs	008-0923	4
15	Nozzle Body	004-4710	1
16	9/16” Interlocking Nut Washer	Hardware	1
17	Straight Jaco Fitting Female	003-A1414F	1
18	Adapter 1/8" FPT x 1/4" HB	003-A1814F	1
19	Air Agitation Tip	004-TXP2	1

C2000-TK Parts Breakdown

2,000 Treatable Ton Tank



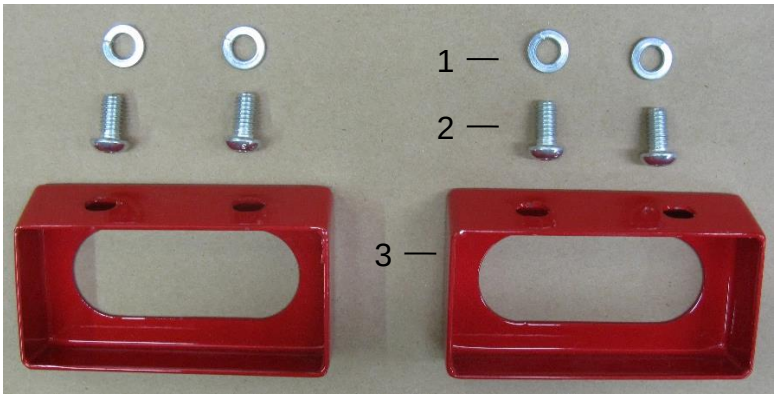
Ref #	Description	Part #	Qty
1	Washer	004-1207W	2
2	Female Quick Connect	004-1207H	1
3	Jaco Straight 1/4" HB x 1/4” NPT	003-JA1414	1
4	Intake Tube	001-4542	1
5	1/4” x 1/2" Reducer	003-RB1214	1
6	1/8”MPT x 1/4"HB	003-A1814	1
7	Screen	002-4752	1
8	Tube Clip	008-9004	1
9	Plastic Knob	008-0923	4
10	Tank Cap	005-9022CX	1
11	Gasket	005-9022CXG	1
12	Tank 20,000ML	005-9210	1
13	Nozzle Body	004-4710	1
14	9/16” Interlocking Nut Washer	Hardware	1
15	1/4” FPT x 1/4" HB Fitting	003-A1414F	1
16	1/4" PVC Tubing	002-9014	5
17	1/8”FPT x 1/4"HB Fitting	003-A1814F	5
18	Air Agitation Tip	004-TXP2	1

Hardware

Qty	Item	Where used	Part #
2	1/4" x 1 1/4 Self-Tapping Bolt	Nozzle Strap	HDR-TC-025-0125
4	3/16" Fender Washer	Compressor	HDR-FW-316
14	10/32 Nylon Lock Nut	Compressor, Injection pump, Tower control	HDR-NY-102
23	M6 x16 Flange Bolt	Cover, Bottle holders, Pump Plate, 1207G stop, Air manifold	HDR-FB-M6-016
5	M6 Flange Nut	Pump Plate, 1207G stop	HDR-NF-M6
4	10-32 x 1/2" Philips Machine Screw	Pump Plate	HDR-P-102-050
6	10-32 x 3/4" Philips Machine Screw	Tower Control	HDR-P-102-075
8	M10 x 20 Flange Bolt	Mounting Bracket for Tower	HDR-FB-M10-020
8	#8 x 3/8 Plastite Screws	Wire Harness Plug	HDR-PTC-8-038
4	5/16" Internal Tooth Washer	Bottle	HDR-ITLW-031
2	6-32 x 3/8" Philips Machine Screw	Encoder	HDR-P-632-038

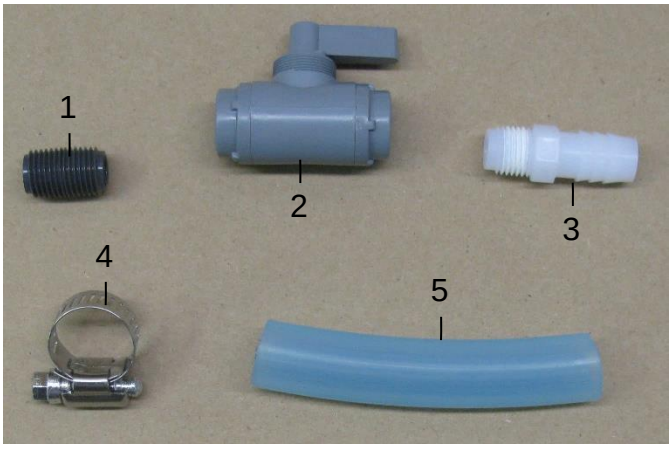
Optional Components

030-C500-LK (Leg Kit)



Ref #	Description	Part #	Qty
1	5/16” Lock Washers	Hardware	4
2	5/16” x 5/8” BHSC	Hardware	4
3	6L Tank Legs	001-4595	2

030-C500-DK (Drain Kit)



Ref #	Description	Part #	Qty
1	1/4" PVC Nipple	003-M14	1
2	SLV Bottle Valve	002-2216	1
3	1/4” MPT x 1/2” HB	003-A1412	1
4	Hose Clamp	003-9003	1
5	1/2" Reinforced PVC	002-9001FRP	2

Notes

Notes

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