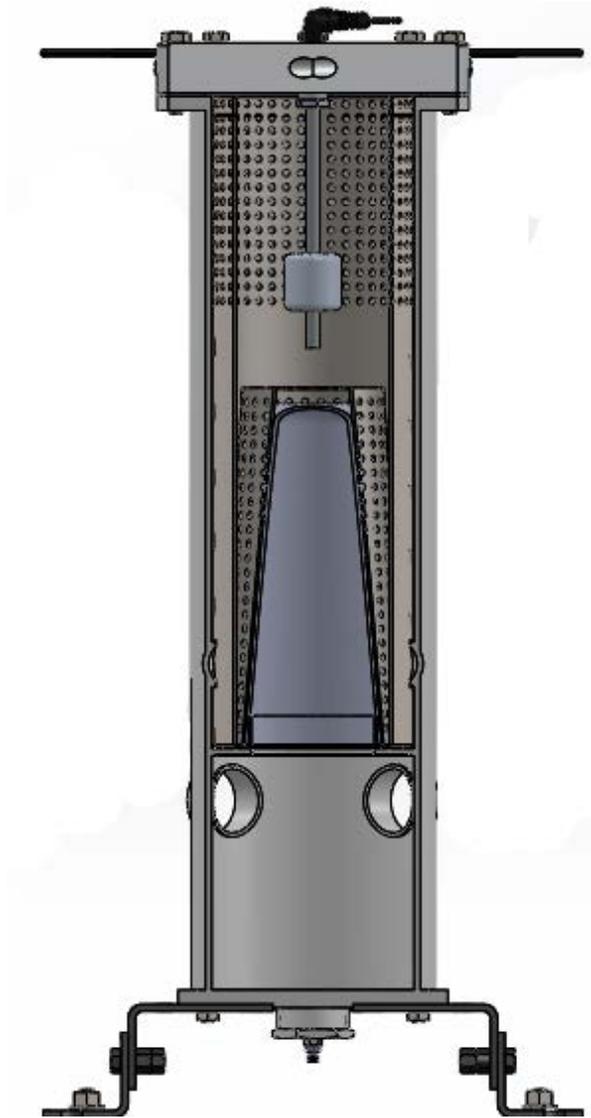


N-Vision™



Operator and Maintenance Manual



APPLICATION SYSTEMS
FOR PROFESSIONALS™

www.capstanAG.com

How Can We Help?
855-628-7722

prodsupport@capstanag.com



Thank you for your business!

At CapstanAG, our goal is to redefine the way people do their chemical application. Our PWM control systems have been setting the bar for maximum productivity for more than 20 years. Our focus on performance, support, and education have dramatically changed the landscape of agricultural chemical application.

CapstanAG specializes in creating proprietary systems for the agricultural industry, primarily focusing on chemical and fertilizer applications. Our inventive process involves research, engineering, design, and lab and field testing.

Service Contact Information

If a problem occurs with your system that cannot be corrected with the information in this manual, please contact your dealer for service and technical assistance. If further assistance is needed, contact CapstanAG.

System Purchased: _____
Dealer: _____
Contact: _____
Phone: _____
Address: _____
City,State/Province, Zip: _____

Factory Service/Repairs

CapstanAG
4225 S.W. Kirklawn Ave. | Topeka, KS 66609
Hours: 8:00 a.m. to 4:00 p.m. CST
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SAFETY

SIGNAL WORDS

FIGURE 1: Signal words designate a degree or level of hazard seriousness.

DANGER: indicates an imminent hazard which, if not avoided, will result in death or serious injury. This signal word is limited to the most extreme situations, typically for machine components that, for functional purposes, cannot be guarded.

WARNING: indicates a potential hazard which, if not avoided, could result in death or serious injury, and includes hazards that are exposed when guards are removed. It may also be used to alert against unsafe practices.

CAUTION: indicates a potential hazard which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

FIGURE 2: Important and Note

IMPORTANT: This is used to draw attention to specific information that is necessary for the operation, setup, or service of the system.

NOTE: This is used for additional information that can help understand or operate the system.



FIGURE 1

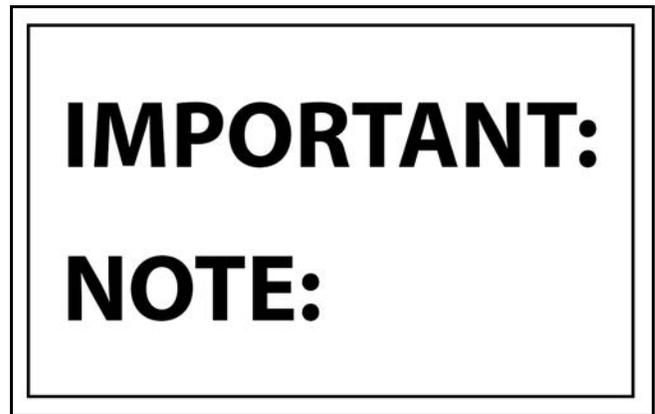


FIGURE 2

SAFETY SIGNS

FIGURE 3: The HCS aligned its provisions with the United Nations' Globally Harmonized System (GHS) Classification and Labeling of Chemicals in 2012. This is a GHS safety label example for a chemical hazard.

These labels and safety messages warn all personnel about hazardous chemicals or potentially unsafe chemical conditions that may exist while working around agricultural application equipment.

CapstanAG add-on application systems for OEM and retrofit agricultural application equipment (booms and toolbars) may contain HCS pictographs and GHS safety labels and safety signal word messages.



FIGURE 3

PRESSURIZED FLUID LINES

Do not heat by welding, soldering, or using a torch near pressurized fluid lines or other flammable materials. Pressurized lines can accidentally burst when too much heat is present

PERSONAL PROTECTIVE EQUIPMENT

Wear close fitting clothing and the correct personal protective equipment (PPE) for the job. See the manufacturer's manual or other information for correct PPE.

BATTERY SAFETY

Use the procedure in the appropriate agricultural equipment manual for connecting, disconnecting, and jump-starting the machine's battery.

Keep sparks and flames away from the battery. Battery gas can explode and cause serious injury. Do not smoke in the battery charging area.

Remove jewelry, which might make electrical contact and create sparks.

CHEMICAL SAFETY

Chemicals used in agricultural applications can be harmful to your health and/or the environment if not used correctly. Always follow all label directions for effective, safe, and legal use of agricultural chemicals.

EMERGENCY SAFETY

Fire extinguishing systems must meet the applicable OSHA requirements, and all users of portable/fixed fire suppression equipment must know the types, limitations, and proper uses of this equipment; including hazards involved with incipient stage firefighting.

Keep emergency numbers for doctors, ambulance service, hospital, and fire department near your telephone.

Know the location of fire extinguishers and first aid kits and how to use them.

Inspect the fire extinguisher and service the fire extinguisher regularly.

Follow the recommendations on the instructions plate.

Very small fires can be put out (extinguished) with a fire extinguisher. Use an appropriate method to extinguish a fire (water for paper fires, and chemical extinguishers for electrical or chemical fires).

INTRODUCTION

THIS MANUAL

Make sure that all personnel has read this manual and thoroughly understand the safe and correct operation and maintenance procedure. Failure to do so could result in personal injury or equipment damage.

This manual should be considered a permanent part of your system and should remain with the system when you sell it.

Right and left sides are determined by facing in the direction of forward travel of the machine the system is on.

The information, screen shots, and other illustrations were correct at the time of publication. Changes can occur without notice.

This manual contains important information on how to safely and correctly install, operate, and maintain CapstanAG equipment. These instructions will help keep personnel safe, reduce downtime, and increase the reliability and life of the equipment, its components, and related systems.

Review the safety information in the Original Equipment Manufacturer (OEM) agricultural equipment manual(s).

Follow the instructions (in this manual) for each step to make sure that work conditions in and around the OEM equipment are safe.

It is important for all individuals working with chemicals to understand the potential risks, necessary safety precautions, and proper response in the event of accidental contact.

Review the OEM agricultural equipment manual(s) for chemical safety information.

Review, understand and read procedures and use Safety Data Sheets (SDS) and the required Personal Protective Equipment (PPE) for hazardous chemicals.

Please keep this manual and all enclosed documentation in an accessible location known to all operators, installation, and maintenance personnel.

If you do not understand the CapstanAG equipment after reading this manual, please obtain the proper training before working with equipment to make sure of your own safety and well as your co-workers' safety.

Do not attempt to operate any equipment or system until you completely understand why, when, and how it operates. If you are uncertain after studying this manual, please contact CapstanAG.

SYSTEM IDENTIFICATION

Write the system name, serial number, and other information down in the Service Contact Information on the inside cover of this manual. Your dealer will use these numbers when you order parts. File a copy of the identification numbers in a secure place off the machine.

If you are not the original owner of this machine, it is in your interest to contact your local CapstanAG dealer to inform them of this unit's serial number. Providing this information will help CapstanAG notify you of any issues or product improvements.

LOCATION OF SYSTEM IDENTIFICATION

Controller Serial Number

The serial number for the controller is on a decal on the outside of the controller.

The serial number is also part of the SSID.

LCD Display Serial Number

The serial number for the LCD display is on a decal on the back of the display.

NOTES

OPERATION

HOW N-VISION™ WORKS



FIGURE 4

FIGURE 4: Liquid, gas, and particulates enter the inlets and is pushed upward.

Gaseous liquid travels upward toward the bag filter.

The bag filter catches the ferrous and nonferrous material.

Gaseous liquid travels upward through the separator where lighter vapor stays above the outlets (level set by the float switch, metered by PWM).

Heavier pure liquid flows down to the outlets and exits.

IMPORTANT: When the flow is shut off, the heavier ferrous and nonferrous material drops to the catch area below the inlets of the oncoming flow.

LCD DISPLAY CONTROLLER IDENTIFICATION

FIGURE 5:

- (1) **POWER** Switch
Power on/off the N-Vision™ system
- (2) **RUN** Switch
When the **RUN** switch is off, the system is in EStop mode which stops the power to the vapor valves:
 - Disable the **RUN** switch when exiting the cab of the tractor or tending the nurse tanks.
 - Disable the **RUN** switch when servicing the N-Vision™ system.
- (3) LCD Display
Readout when a tablet is not used



FIGURE 5

TABLET IDENTIFICATION (OPTIONAL)

FIGURE 6:

- (1) USB Port
USB Charger/Accessory Port

IMPORTANT: See the tablet documentation for more information about the tablet functionality.

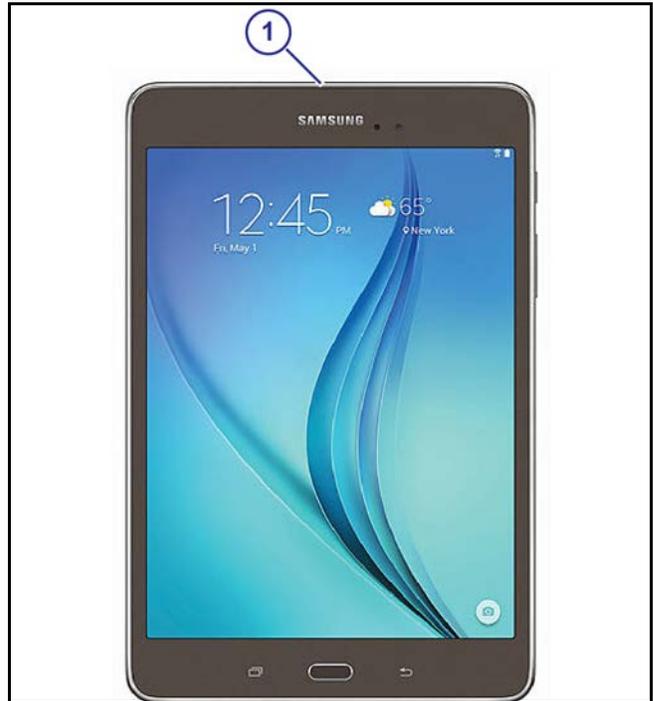


FIGURE 6

Icon Descriptions

 	<p>The Run Screen icon illuminates when the Run Screen is selected/shown. Touch the icon or swipe anywhere on the screen to change menu screens.</p>
 	<p>The Full Screen Mode icon will illuminate when touched and will open the N-Vision™ screens over the whole display. Touch the icon again to disable full screen mode.</p>
 	<p>The EStop icon will illuminate red when the EStop is engaged. This function is only enabled by the RUN switch on the cab box. When engaged, all vapor flow will stop, and all power to the PWM valves will stop.</p>
 	<p>The Wi-Fi icon will illuminate green when the system is connected, and data is being received from the N-Vision™ system controller.</p> <p>The Wi-Fi icon will illuminate red when data is not being received from the N-Vision™ system controller.</p> <p>NOTE: The system is operating even when tablet is not connected via Wi-Fi.</p> <p>IMPORTANT: Make sure that the controller is logged onto N-Vision™ Wi-Fi or the page will not load.</p>
 	<p>Touch or swipe the Settings icon to show the current system settings. The operator can:</p> <ul style="list-style-type: none"> • Edit/control PID • Edit implement switch • Turn on or off the data logging feature. This feature stores the serial stream data locally to your tablet for later review
 	<p>Touch or swipe the Diagnostics icon. The icon will illuminate when the DIAGNOSTICS Screen is showing.</p> <p>This screen is an in-depth version of the Run Screen. This screen shows the visual liquid and vapor status graphed over a period of time.</p>

Tablet Interface Setup and Screen Identification

FIGURE 7: Run Screen

(1) Liquid level gauge

- Green - acceptable range of operation - all liquid is going to the distribution device.
- Yellow - cautionary range of operation - some vapor may pass through.

CapstanAG™ recommends to slow down the machine speed to bring the system back into the green.

- Red - over running the liquid flow capacity - Vapor liquid mixture is being pulled through the anhydrous system. Slow the machine speed down or evaluate your plumbing needs again.

When the system reaches the red area, the low liquid alarm (25% or less) will sound.

When the needle of the liquid level gauge stays at 4% or less for three seconds, an alarm will show. The alarm shows that the anhydrous tank is empty. Stop operation and disable the **RUN** switch. Then change the nurse tank(s).

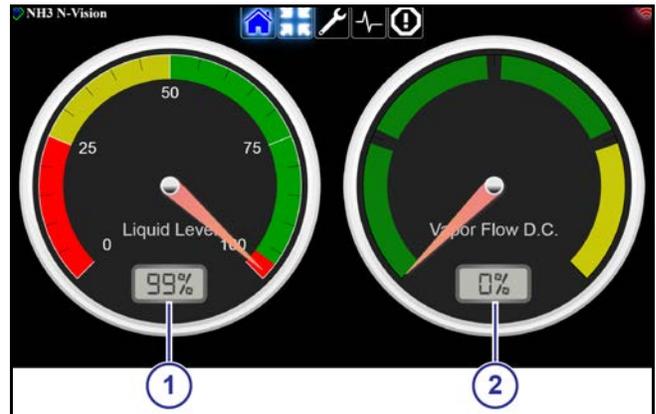


FIGURE 7



If exposed to anhydrous ammonia, immediately call a Poison Control Center or doctor/physician. If on the skin (or hair), remove/take off immediately all contaminated clothing. Rinse skin with water/shower. If in eyes, rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If inhaled, remove victim to fresh air and keep at rest in a position comfortable for breathing.

(2) Vapor flow gauge

PWM valves on the top of the unit are metering and evacuating vapor.

FIGURE 8: From left to right on gauge:

- (1) One valve is on. This area is green. Shows as 0% to 100%.
- (2) Two valves are on. This area is green. Shows as 101% to 200%.
- (3) Three valves are on. This area is green. Shows as 201% to 300%.
- (4) Four valves are on. This area is yellow, indicating this is the last valve left to activate. Shows as 301% to 400%.

At 400% all valves are locked open.

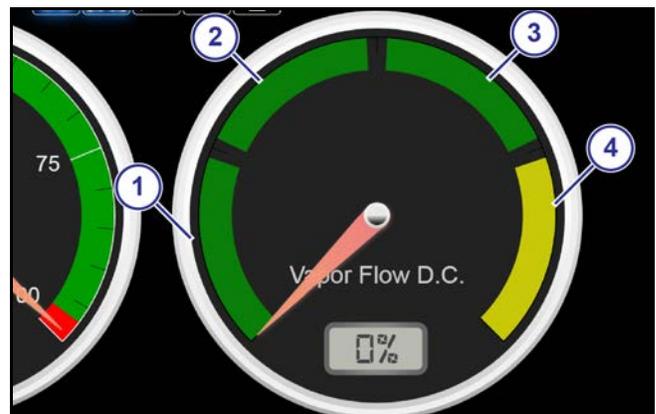


FIGURE 8

FIGURE 9: Run Screen with the RUN switch disabled.



FIGURE 9

FIGURE 10: Run Screen with N-Vision™ System in Operation Mode

This is an example of the Run Screen with the liquid level (1) falling below the set point and the PWM valves (2) actuated to bring the liquid level above the set point.



FIGURE 10

FIGURE 11: Diagnostics Screen

- (1) The liquid levels graph
 - The green line (2) is the liquid level control set point.
 - The blue line (3) is the current liquid level over time.
- (4) The Vapor Flow DC%
 - The red line (5) shows how many valves are on and shows the current DC%.

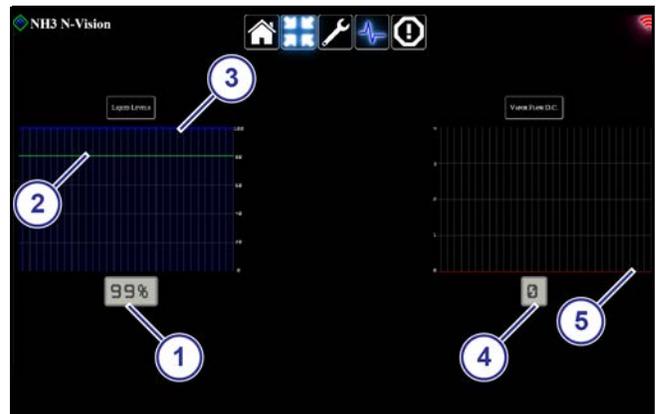


FIGURE 11

FIGURE 12: Settings Screen

Enable or disable data logging on the **Settings** screen.
 Change the default settings on this screen.
 The data logging feature saves the serial stream data locally on the tablet or phone for later review.

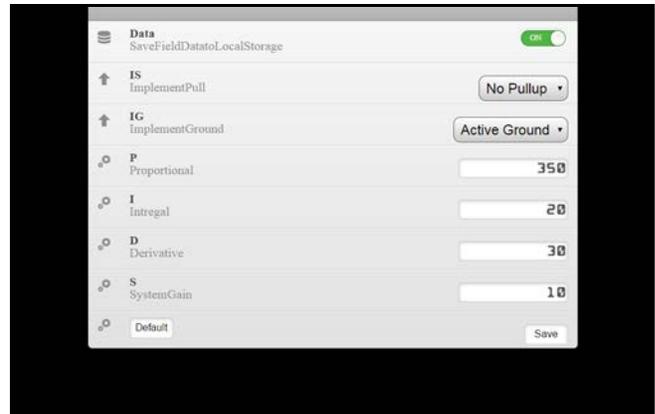


FIGURE 12

FIGURE 13: Low Liquid Alarm

The low liquid alarm will sound when the liquid level falls below 25% (the red zone on the liquid level gauge).
 Select CANCEL to ignore the alarm.
 The alarm will disappear for 45 seconds if manually ignored. If after 45 seconds operation is still in alarm state the notification will pop back up.
 Alarm will self-cancel when the system is above 25%.

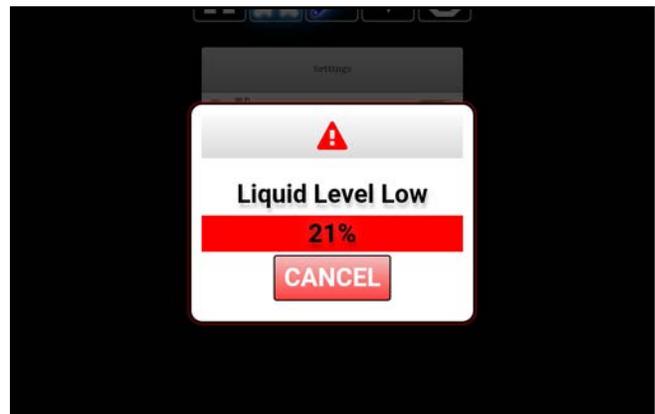


FIGURE 13

FIGURE 14: Tank Empty Alarm

The tank empty alarm will sound when the liquid level is below 4% for three or more seconds.
 The alarm will self-cancel when the system is above 4%.

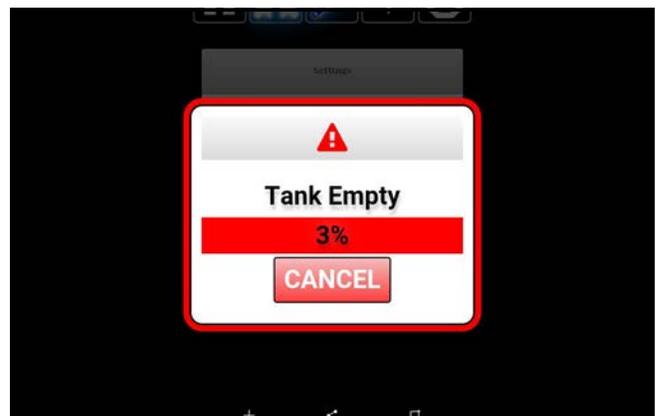


FIGURE 14

MAINTENANCE

FILTRATION BAG

It is recommended to replace the filtration bag once a season, or after excessive debris is collected. Periodic checks may be necessary with known excessively rusty tanks or after the tanks have been rim dry for the first time.

Replace the Filtration Bag

FIGURE 15:

1. Use the bleeder port (1) on the clean side of the filter to remove pressure.

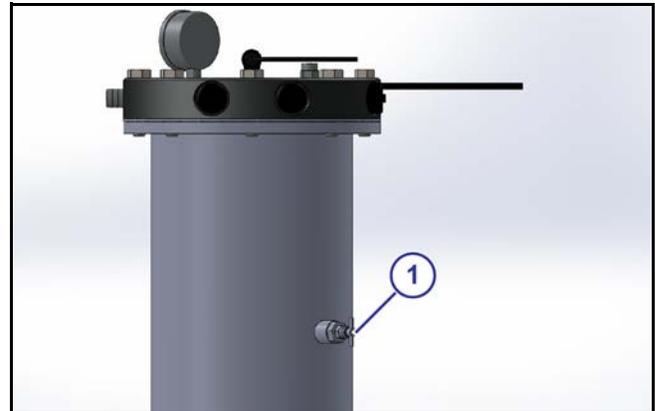


FIGURE 15

FIGURE 16:

2. Slowly open the ball valve (1) to remove any remaining product and pressure.

The ball valve should be connected to the ammonia safe hose and ran away from valve port.

Make sure that the pressure and product are completely removed from the N-Vision™ housing.

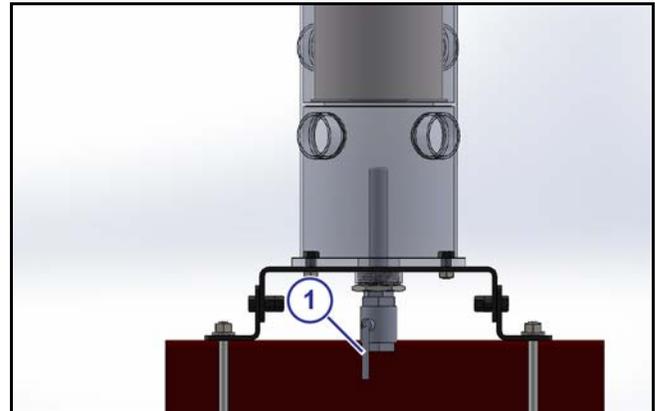


FIGURE 16

FIGURE 17:

3. Remove the eight 1/2 in bolts (1) from the cap assembly.
4. Remove the cap assembly.

Make sure that you do not damage the float switch when lifting the cap.

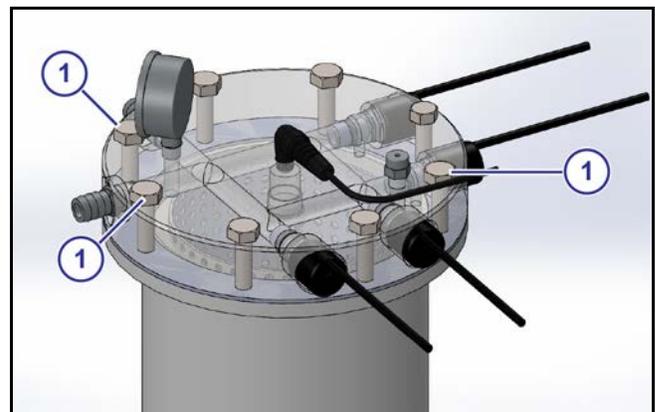


FIGURE 17

FIGURE 18:

5. Remove the separator tube assembly (1).

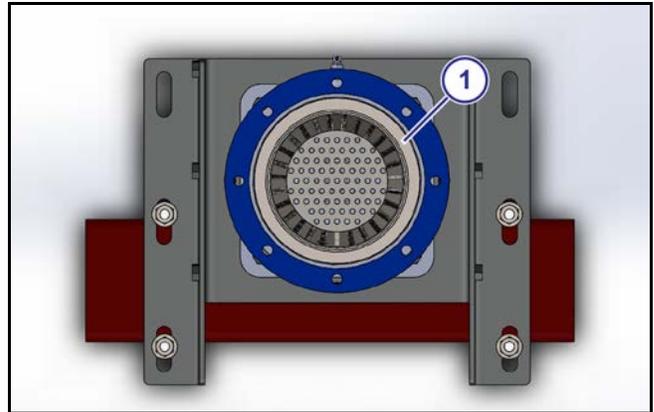


FIGURE 18

FIGURE 19:

6. Remove and discard the filtration bag.
7. Remove the identification tag on the inside of the new bag.
8. Lubricate the steel separator and the inside of the housing with a protectant.
9. Install the new filtration bag inside the separator tube.

Make sure that the filtration bag flange is installed onto the separator tube flange.

10. Install the separator tube assembly into the N-Vision™ housing until the separator tube assembly is on the internal seat ring on the inside of the housing.
11. Make sure that there is no damage to the cap O-ring.
12. Install the cap assembly and eight 1/2 in bolts and washers.
13. Torque the bolts to 90 lbf ft (122 Nm).
14. Make sure that the system is sealed and that there are no leaks.



FIGURE 19

TROUBLESHOOTING

<p>The system does not reach the liquid level set point.</p> <p>The system continues to try and burp vapor with four valves locked open, even with an appreciable amount of ammonia in the nurse tank.</p> <p>You are going over the capabilities of the application plumbing</p>	<p>Slow the application speed down until the liquid level goes above 80 to make sure that the quality of product to the distribution device.</p> <p>To maintain the rate and speed consistently across the application:</p> <ol style="list-style-type: none"> a. Reevaluate your plumbing configuration and increase plumbing diameter and high flow valves and fittings, if necessary. b. Try to eliminate tee fittings and elbows where the fittings are not necessary.
<p>When applying ammonia and the system does not reach the liquid level set point, is unable to go above a level point, or is stuck at a liquid level reading.</p>	<ul style="list-style-type: none"> • Make sure that the system is in Run mode and that the system is not in implement switch mode. • Faulty float switch: <p>Probe the float switch power and ground line to check that the output voltage from the controller to the float switch is 18V. If it is not, then your controller is not functioning properly.</p> <p>If you do have 18V, bleed the system dry and make sure housing is void of pressure and product. Remove the cap exposing the float switch. Use a multimeter to probe the signal and ground wires and move the float from bottom to top. You should be getting 1V at the bottom and 5V at the top. If you are getting 18v input voltage to float switch and not 1-5V output range, your float switch need replaced.</p>
<p>The system is struggling to keep the rate correct and is producing excessive vapor</p>	<p>Make sure that the system is in Run mode.</p> <p>Bleed the system dry and do a check of the filter health to make sure that the bag filtration unit is not excessively dirty or does not need to be replaced.</p> <p>Make sure that there is not a nurse tank related issue.</p> <ul style="list-style-type: none"> • Overflow valve popped • Nurse tank is fully open • Kink in the inlet house • Break away issue
<p>Drain valve is not flowing</p>	<p>Open the top bleeder valve and wait until the housing is void of product and pressure. Remove the drain valve filter and check for any obstructions. If obstructed, clean and reinsert. It is also recommended to remove the cap and do a system flush at this time.</p>

<p>N-Vision™ tablet graphics/gauges are not correctly functioning</p>	<p>Make sure that the Wi-Fi is operating correctly.</p> <ul style="list-style-type: none"> • If the tablet screen is nonreactive or frozen and still connected to the N-Vision™ Wi-Fi, cycle power on the N-Vision™ LCD display controller to reinitialize the N-Vision™ Wi-Fi. Connect to the N-Vision™ Wi-Fi and go to capstan.ag and the tablet will automatically reconnect. You can also use the readout on the LCD display controller until you are at a stopping point. <p>NOTE: <i>You do not have to stop the application of product to restart the system. You will lose all vapor separation and visual readout during the restart. This will not inhibit flow through the housing to the metering or distribution devices.</i></p> <p>If the Wi-Fi icon is red, the Wi-Fi connection has been lost, and the system could not reconnect. The tablet will try to auto reconnect with the controller in cases on connection lost first. Cycle power on the N-Vision™ LCD display controller to reinitialize the connection with the tablet if automatic reconnect was not successful.</p>
<p>Float liquid level is showing at -20%</p>	<p>The controller is not receiving a signal from the float switch.</p> <ul style="list-style-type: none"> • Make sure that the three-pin Weather Pack between the voltage booster and the float switch has a good connection. • Make sure that the signal wire is not broken or have a bad crimp.

WARRANTY

LIMITED WARRANTY

Rev Date: 7/15/2014

A. What does the Limited Warranty cover?

The ultimate purchaser/user (“you”), by acceptance of seller Capstan Ag Systems, Inc.’s, (“our,” “we,” or “us”) product, assume all risk and liability of the consequences of any use or misuse by you, your employees, or others.

All replacement components furnished under this warranty, but shipped before the failed component is returned for evaluation, will be invoiced in the usual manner and warranty adjustments will be made after the component claimed to be defective has been returned to and inspected and deemed defective by us at our factory.

Upon determining that a component has failed under warranty, the repaired component or replacement component, furnished under this warranty, will be shipped at our expense, to your location. We will credit you an amount equal to the incoming freight you paid. We shall not be responsible for installation costs. (You shall be responsible for all customs and brokerage fees for all international transactions.)

If the component does not prove to be defective, you shall be liable for all freight, inspection and handling costs. In no event will any claim for labor or incidental or consequential damages be allowed for removing or replacing a defective product. Warranty will be denied on any component which has been subject to misuse, abuse, accidents, or alterations, or to improper or negligent use, maintenance, storage or transportation and handling.

Our liability under this warranty, or for any loss or damage to the components whether the claim is based on contract or negligence, shall not, in any case, exceed the purchase price of the components and upon the expiration of the warranty period all such liability shall terminate. The foregoing shall constitute your exclusive remedy and our exclusive liability.

The terms of this warranty do not in any way extend to any product which was not manufactured by us or one of our affiliates.

While necessary maintenance or repairs on your Capstan Ag Systems, Inc. product can be performed by any company, we recommend that you use only authorized Capstan Ag Systems, Inc. dealers. Improper or incorrectly performed maintenance or repair voids this warranty.

The foregoing warranty is exclusive and is in lieu of all other warranties expressed or implied. We shall not be liable for any incidental or consequential damages resulting from any breach of warranty.

Your exclusive remedy for breach of warranty shall be repair or replacement of defective component(s): Provided, if the component(s) are incapable of being repaired or replaced, your exclusive remedy shall be credit issued, but such credit shall not exceed the purchase price of the components.

On any claim of any kind, including negligence, our liability for any loss or damage arising out of, or from the design, manufacture, sale, delivery, resale, installation, technical direction of installation, inspection, repair, operation of use of any products shall in no case exceed the purchase price allocable to the components.

In no event, whether as a result of breach of contract or warranty or alleged negligence, shall we be liable for incidental or consequential damages, including, but not limited to: personal injury, loss of profits or revenue, loss of use of equipment or any associated equipment, cost of capital, cost of substitute equipment, facilities or services, downtime costs, environmental damage, crop losses, or claims of customers of you for such damages.

B. What is the period of coverage?

We warrant to you, that our products are free from defects in material and workmanship in normal use and service for a period of one year from date of purchase.

C. How do you get service?

Our obligation under this warranty shall be limited to the repairing or replacing at our option, the component which our inspection discloses to be defective, free of charge, return freight paid by us, provided you: (i) Notify us of defect within thirty (30) days of failure; (ii) Return the defective component to us, freight prepaid; (iii) Complete the Owner Registration Form and returned it to us; and (iv) Establish that the product has been properly installed, maintained and operated in accordance with our instructions or instructions contained in our operations or maintenance manuals and within the limits of normal usage.

Any claim for breach of our warranty must be in writing addressed to us and must set forth the alleged defect in sufficient detail to permit its easy identification by us. All breach of warranty claims must be made within thirty (30) days after expiration of the warranty period which is applicable to the defective product. Any breach of warranty claim not timely made will not be honored by us and will be of no force and effect. Any component that needs to be repaired or evaluated for warranty has to be authorized before return. Contact the factory (785-232-4477) to get a Return Materials Authorization (RMA #). This helps to track the part coming into the factory for repair or replacement.

Before returning any component to the factory, clean the component as well as possible to remove any dirt or chemical residue. Components received at the factory that are not clean, will be returned and warranty denied.

After receiving your RMA #, package the part, making sure to include the RMA #, your name, customer's name, your address and phone number and description of problems or failure. Then ship to:

**Capstan Ag Systems, Inc.
Attn: Warranty/Repair
4225 SW Kirklawn Ave.
Topeka, KS 66609**

**Phone: (785) 232-4477
Fax: (785) 232-7799
Hours: 8 a.m. - 4:30 pm CST**

D. How does state law relate to this Limited Warranty?

Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.

Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

SCHEMATICS

SYSTEM WIRING DIAGRAM

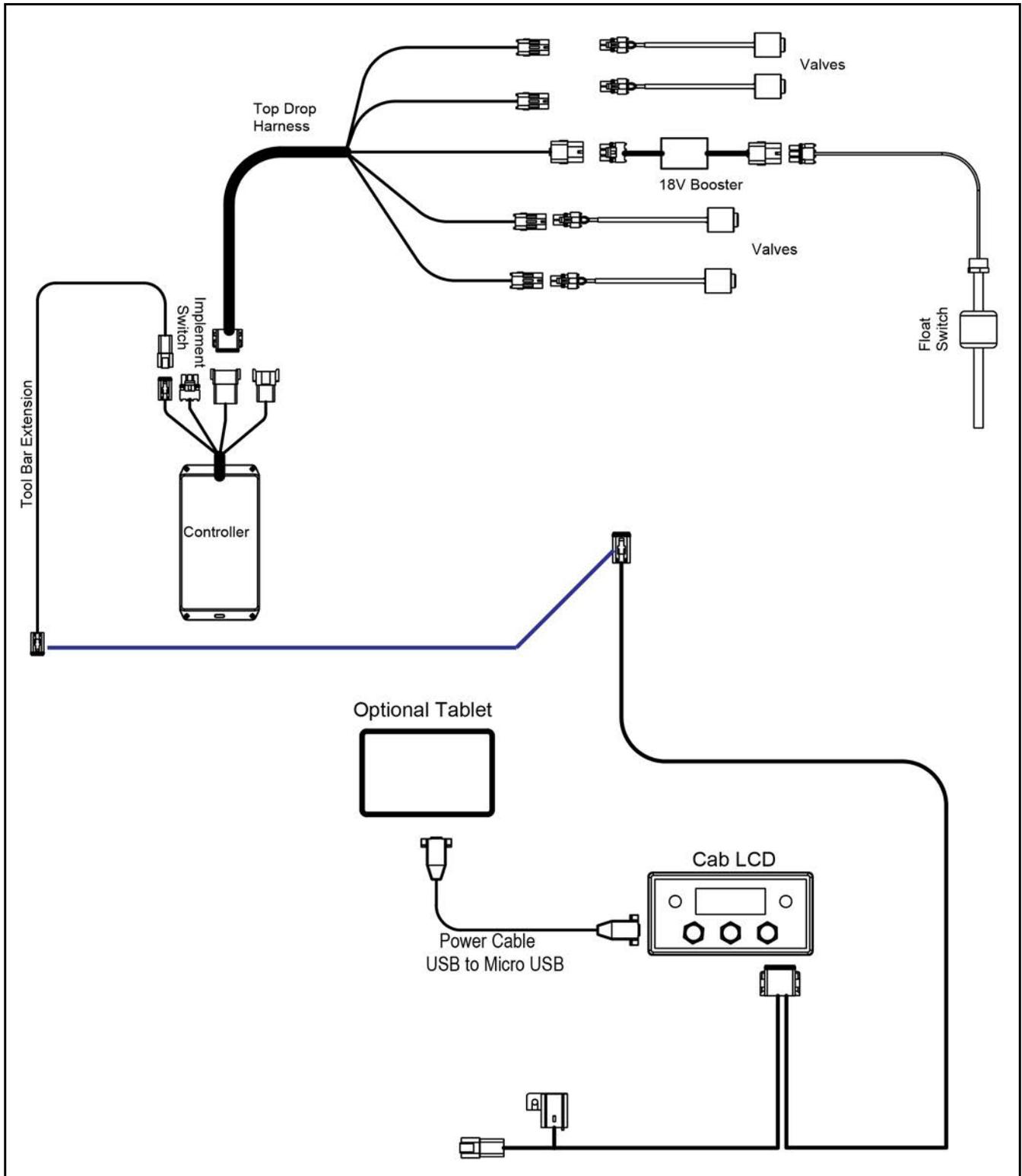


FIGURE 20

FIGURE 20:

COMPONENT IDENTIFICATION

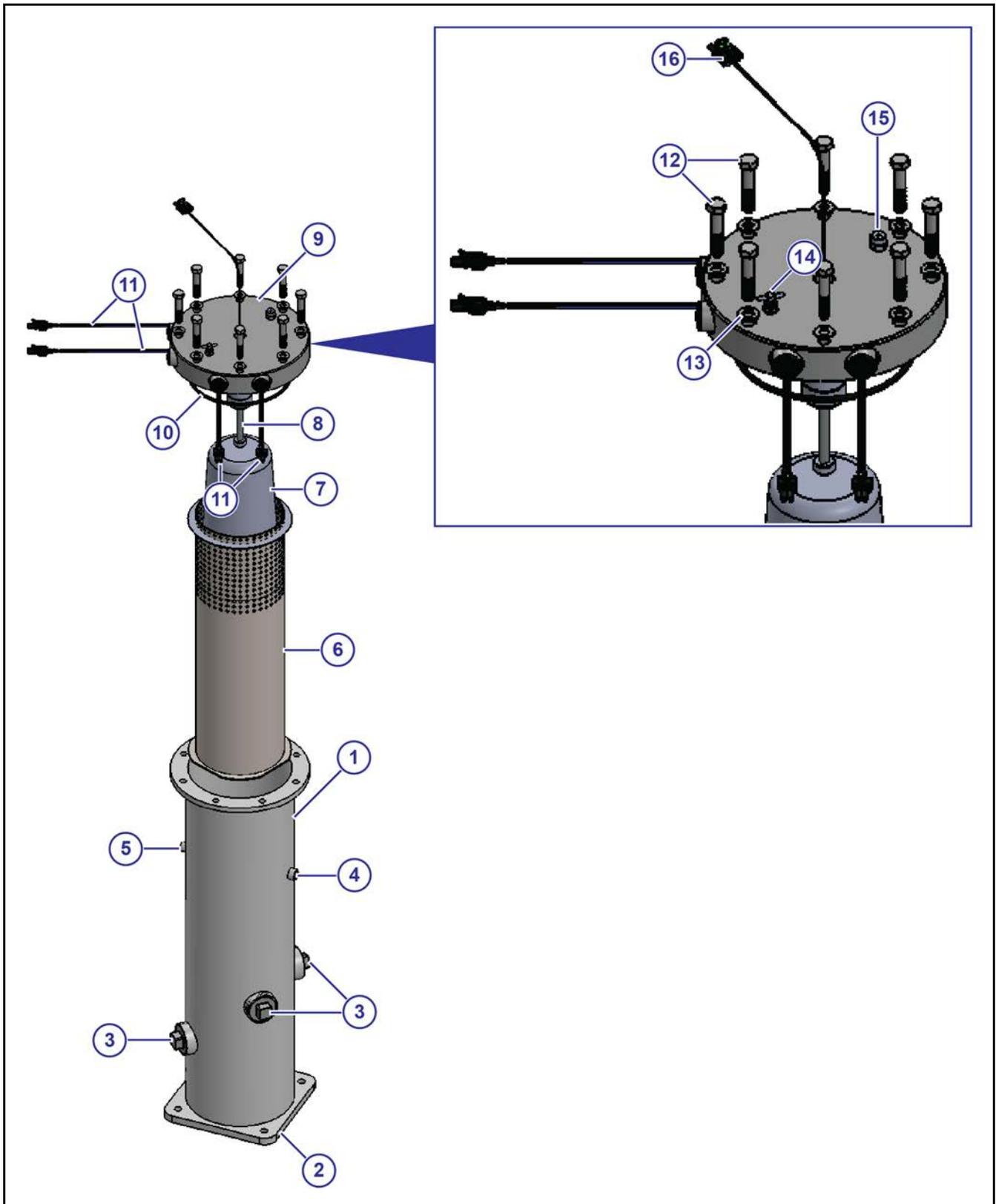


FIGURE 21

FIGURE 21:

CALLOUT	DESCRIPTION	PART NUMBER	QTY
1	Tank Housing	620301-001	1
2	1 in Plug	620301-008	1
3	2 in Plug	620301-009	4
4	3/8 in Plug	620301-011	1
5	1/4 in Plug	620143-001	1
6	Separator Screen Assembly	620305-001	1
7	100 Micron Polypro Filter Bag	620305-100P	1
8	Float Switch	620308-012	1
9	Cap Housing	620302-004	4
10	Cap O-Ring	620302-005	1
11	12 W Coil Assembly	625147-011	4
12	1/2-13 x 2.5 Flange Bolt	620113-002	8
13	M12 Flat Washer	620111-001	8
14	Bleeder Valve	620123-001	1
15	Pressure Relief Valve	620122-001	1
16	Female Terminal and Male Connector	706530-206 and 706500-503	3 and 1

WIRING PACKAGE KIT

DESCRIPTION	PART NUMBER	QTY
Top Drop Harness	620303-001	1
Tractor Cab Harness	620303-012	1
Power Harness	620303-004	1
Display Assembly	620303-013	1
RAM Mount	118603-111	1
Controller Bracket	620300-210	1
3/8 in U-Bolt	620300-211	1
3/8-16 Hex Lock Nut	713501-905	2
1/4-20 Bolt	709031-908	2
1/4-20 Hex Lock Nut	713501-903	2

MOUNT KIT

DESCRIPTION	PART NUMBER	QTY
Mount Bracket	620307-006	1
Mounting "L" Bracket	620307-007	2
1/2-13 x Flange Bolt	620113-001	10
M12 Flat Washer	620111-001	10
1/2-13 Hex Flange Nut	620114-001	10

DRAIN KIT		
DESCRIPTION	PART NUMBER	QTY
1/2 in Ball Valve	620123-002	1
1/2 in Close Nipple	716008-323	1
1 x 1/2 in 100-Mesh Suction Strainer	620305-050	1

GAUGE KIT		
DESCRIPTION	PART NUMBER	QTY
400 psi Liquid Filled 4 in Gauge	620125-002	1
1/4 in Close Nipple	716008-315	1
1/4 in Elbow	716008-317	1

INSTALLATION AND SETUP

TOOLBAR INSTALLATION

1. Mount the housing bracket to the two “L” brackets using six supplied 1/2 in grade 8 bolts, washers, and nuts.

IMPORTANT: Near the rear of the toolbar, center the assembly as centered as possible.

IMPORTANT: Use correct lifting equipment to install this system.

2. Install the U-bolts through the “L” brackets on the toolbar.
3. Lift the housing assembly onto the housing bracket.
4. Rotate the housing assembly to the position that works for your application.
5. Install the housing to the housing bracket assembly with four 1/2 in grade 8 bolts, washers, and nuts.
6. Remove any unneeded 2 in plug(s) from the housing inlets.
7. Install the inlet reducer(s) or fitting(s).

IMPORTANT: The inlet hose should be coming from the breakaway into any of the lower two 2 in inlet ports.

IMPORTANT: CapstanAG recommends using both Teflon tape and thread sealant.

8. If injection is desired:
 - a. Remove the 3/8 in plug from the port.
 - b. Use this port to install the check valve and fittings.
9. Remove any unneeded 2 in plug(s) from the housing outlets.
10. Install the outlet reducer(s) or fitting(s).

IMPORTANT: The outlet hoses should go to your metering or distribution device.

IMPORTANT: CapstanAG recommends using both Teflon tape and thread sealant.

11. Install two hose barb fittings into the exit ports of the manifold cap assembly.
12. Install the hoses to the individual ports.
13. Install a hose clamp on each hose.

IMPORTANT: These vapor lines must be put into double tube knives or tied into outlet line. These lines are for vapor expulsion only.

14. Install the gauge kit into the 1/4 in port on the tank housing.
15. Connect the top drop harness two-pin Weather Pack connectors to the four PWM valves on the top of the cap assembly.
16. Connect the float switch on the top of the cap assembly to the three-pin Weather Pack labeled **FLOAT** on the top drop harness.

FIGURE 22:

17. Install the controller (1) to the controller bracket (2) using the 1/4 bolts, washers, and nuts.

The controller mounts at the back of the toolbar in a clear line of sight facing the back of the machine for optimal Wi-Fi signal.

The controller houses the Wi-Fi transmitter module. The Wi-Fi module is located in the upper portion (3) and is identified by the controller decal. The Wi-Fi module must have a buffer area around it free of metal for optimal signal reception on the tablet.

The controller can be remotely mounted as long as there is a clear line of sight to the machine, wires are facing down, and the Wi-Fi module is free of metal interference.

18. Connect the six-pin Deutsch toolbar extension to the six-pin Deutsch connector on the N-Vision™ controller.
19. Route the six-pin extension to the hitch of the toolbar.
20. Attach all the toolbar harnessing to the chassis with zip ties.

IMPORTANT: The installation of the toolbar is complete. Continue with installation of the system.

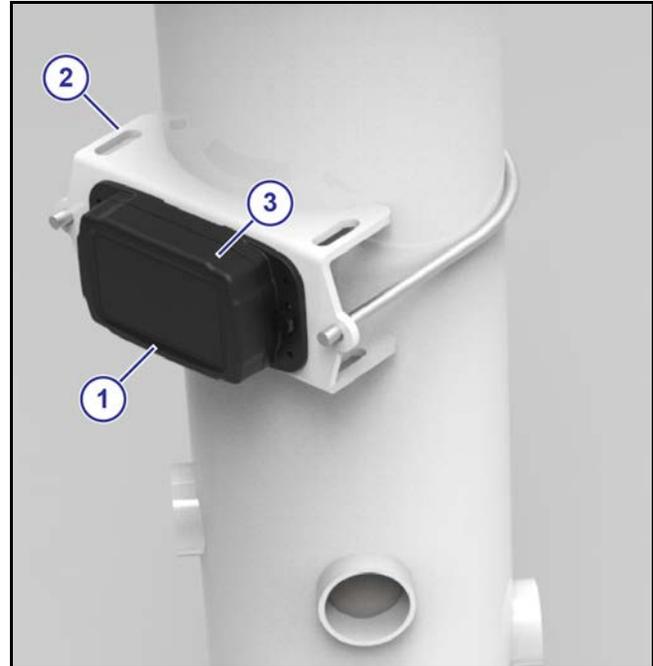


FIGURE 22

TRACTOR HARNESS INSTALLATION

1. Route the tractor harness from the hitch of the tractor into the cab of the tractor.
2. Connect the 12-pin Deutsch connector to the 12-pin connector on the LCD display.
3. Install the LCD display in a location that is reachable within the cab of the tractor.

IMPORTANT: The LCD display controller includes the **POWER** and **RUN** switches and the backup LCD readout.

NOTE: If the tablet is used:

- a. Install the tablet cradle and the RAM Mount to the tractor display bar.
- b. To help maintain the charge of the tablet, install the micro USB tablet power cable into the USB port in the LCD display controller
4. Install the two-pin Deutsch connector of the tractor harness into the power harness.
5. Install the power harness into an available accessory power plug port inside the cab of the tractor.
6. Attach all tractor harnessing to the tractor with zip ties.

IMPORTANT: The tractor installation is complete. Continue with the installation of the system.

TABLET SETUP (OPTIONAL)

1. Use the **POWER** switch on the LCD display controller to turn on the N-Vision™ system.
2. Turn on the tablet.
3. Connect the tablet to the Capstan N-Vision™ Wi-Fi.
 - Make sure to connect to the correct SSID if there are multiple N-Vision™ systems used, or using the same tablet.

EXAMPLE: N-Vision™ 0010000

IMPORTANT: The password is: **SmStr**.

4. To view the interface, open the web browser and type: **capstan.ag**.
 - The N-Vision™ controller will automatically connect.
 - The Wi-Fi icon will illuminate green when connected, and the interface is receiving live communication.

CHANGE THE PID SETTINGS

IMPORTANT: This procedure is how an operator or technician can change the PID settings with only the LCD Display in the cab of the machine and the use of any smart device.

NOTE: *This settings function is preset for optimal function, in most cases, from the factory.*

1. Use the **POWER** switch on the LCD display controller to turn on the N-Vision™ system.
2. Turn on the smart device.
3. Connect the tablet to the Capstan N-Vision™ Wi-Fi.
 - Make sure to connect to the correct SSID if there are multiple N-Vision™ systems used, or using the same tablet.

EXAMPLE: N-Vision™ 0010000

IMPORTANT: The password is: **SmStr**.

4. To view the interface, open the web browser and type: **capstan.ag**.
 - The N-Vision™ controller will automatically connect.
 - The Wi-Fi icon will illuminate green when connected, and the interface is receiving live communication.
5. Select the **Settings** icon.

This will let you select and change your PID values and system gains as desired.
6. Once done, close page.

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