



SPILLSTOP ULTRA[™]
Overfill Prevention System

MODEL 815U OWNERS MANUAL

IMPORTANT OPERATOR INFORMATION

DATE INSTALLED: _____
UNIT NUMBER: _____
MINIMUM TANK READOUT: _____
EMPTY POINT: _____
WARNING HORN POINT: _____
SHUTDOWN POINT: _____
MAXIMUM TANK READOUT: _____



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CHAPTER 1 OVERVIEW

Congratulations on purchasing the Garnet Instruments Model 815 Ultra SpillStop overfill prevention system. The SpillStop represents the state of the art in spill control for crude oil and chemical hauling. The SpillStop is designed to work in conjunction with a Garnet Model 810PS SeeLevel ProSeries or a Model 808PA SeeLevel Special gauge to assist the truck operator with truck tank overfill protection in applications where the fluid is loaded with a PTO driven pump.

The system is dependent upon the operator to determine SeeLevel float movement, and is intended as an emergency backup system in the event that the operator is unable to shut down loading when the tank is full.

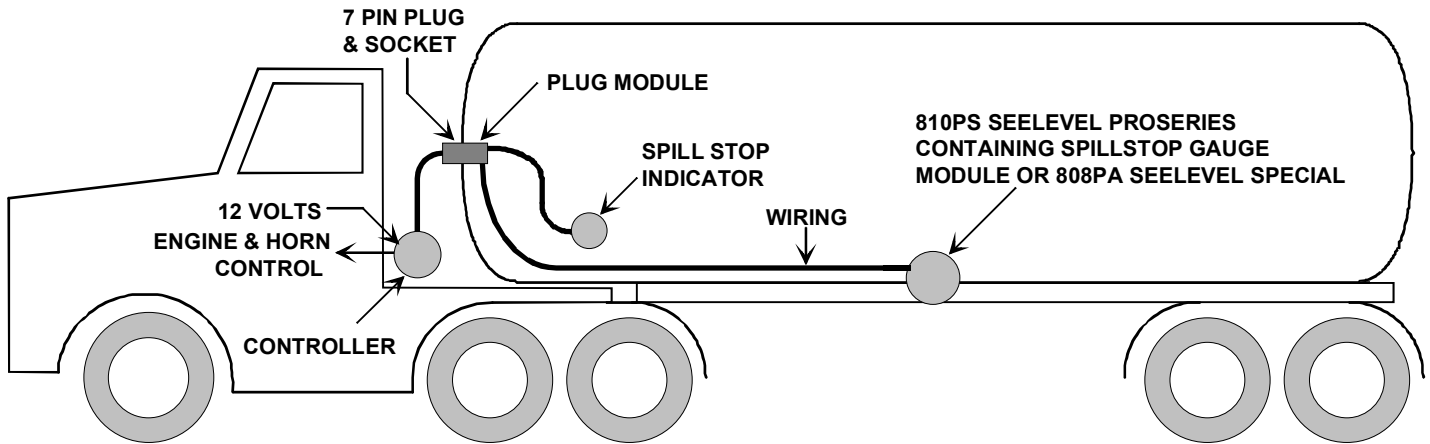
The SpillStop is easy to install and operate, and is designed to withstand the rigors of mobile applications. It consists of a truck mounted controller and a small module that inserts into the SeeLevel ProSeries gauge (the module is built in to the SeeLevel Special gauge). An optional indicator is available to verify proper plug connections for tractor trailer applications. The system can shut down either the truck engine or hydraulically operated loading pumps. A horn alarm is provided to warn of an impending shut down condition.

The Model 916 Total Programmer is used to set the alarm points in the SeeLevel gauge, which determines the horn alarm and shutdown points.

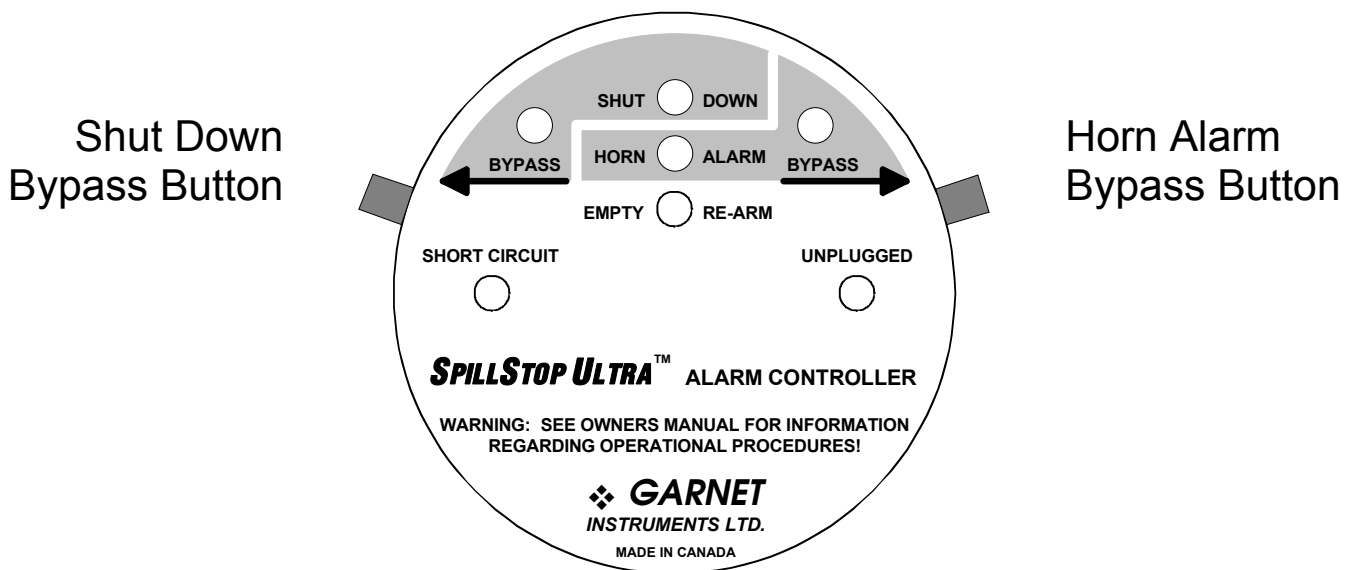
CHAPTER 2

815 ULTRA SPILLSTOP FEATURES AND OPERATION

The following sketch shows the basic components and connections of the SpillStop for a tractor trailer application. A body truck application would be similar except that the 7 pin plug & socket, the plug module, and the SpillStop indicator would not be required since the tank is never disconnected from the truck.



The SpillStop consists of three main components: the controller on the truck, the optional plug module inside the 7 pin socket housing on the trailer, and the gauge module inside the SeeLevel ProSeries truck gauge (the gauge module is built in to the SeeLevel Special display). The following sketch shows the front panel of the SpillStop Ultra Controller.



The gauge module installs inside the SeeLevelL gauge display, and converts the alarm signals from alarms 1, 2, and 3 in the SeeLevelL gauge to a pulse signal that is sent along a single wire to the controller. The plug module monitors the signal between the gauge module and the controller and turns on the SpillStop indicator only if the 7 pin plug is connected and the signal is getting from the gauge to the controller. The controller monitors and displays the alarm status of the gauge, and activates a horn if the fluid level in the truck tank is at the full point, and shuts off the pump or vehicle engine if a spill is imminent. Each 815 Ultra controller accommodates one compartment.

WARNING: The *SPILLSTOP ULTRA*[™] is intended as an emergency backup system only, and is not intended as a substitute for operator diligence during the loading process.

The operation of the SpillStop Ultra during the loading operation is as follows: When the tank is empty, the green EMPTY/RE-ARM indicator is on, the horn is off, and the engine or pump is allowed to run. As the fluid level starts to rise, the EMPTY/RE-ARM indicator goes out. When the horn alarm point is reached, the yellow HORN ALARM indicator comes on and the horn is activated with a 0.5 second on, 0.5 second off cycle. Depressing the horn alarm BYPASS at this point lights the red horn alarm bypass indicator and silences the horn. If the fluid level continues to rise and reaches the engine shutdown point, the red SHUT DOWN indicator will come on and the pump or truck engine will be shut off. Depressing the shutdown BYPASS at this point lights the red shutdown bypass indicator and allows the pump or engine to be restarted. When either of the BYPASS switches are depressed, the associated alarm indicator remains on even though the alarm function has been suppressed, which reminds the operator that the fluid level situation which triggered the alarm still exists. As the tank is unloaded the alarm indicators will go out when the fluid level drops below the alarm points, and the bypasses will be cleared (the system is re-armed) when the EMPTY/RE-ARM indicator comes back on. This automatic feature means that there is no need for the operator to re-arm the system, removing the possible operator error of forgetting to re-arm. If the tank is not filled to the alarm point, the system can still be bypassed to prevent sloshing from sounding the horn or shutting down the engine during driving. If the tank is to be filled from more than one location, the alarms can be bypassed during driving between loading sites, and the system manually re-armed to re-establish spill protection for the second load. Re-arming is done by pressing both of the BYPASS buttons at the same time for two seconds.

The SpillStop Ultra has a number of convenience and safety features built into it. When the tank is empty, the bypasses will not work, preventing accidental bypassing before loading. Delays are incorporated into the system to prevent electrical noise or momentary bad connections from disrupting operation. A short circuit in the wiring to the gauge, or plugging the SpillStop plug into the trailer lighting socket, lights the red SHORT CIRCUIT indicator and shuts down the pump or engine. An open circuit in the wiring to the gauge, or a disconnection of the plug to the trailer, lights the red UNPLUGGED indicator, sounds the horn, and shuts down the pump or engine. The alarms from an unplugged situation can be bypassed to allow operating the tractor without the trailer connected. The pulse signal between the gauge and the controller cannot be corrupted by poor connections or moisture in the wiring; if the signal is too badly degraded it defaults directly to an open or short circuit condition. A failure of the SeeLevel or SeeLevel Special gauge causes the controller to default to the horn alarm and shut down condition. The gauge and plug modules cannot be damaged by short circuits or by plugging the trailer light plug into the SpillStop socket. The controller will operate at truck voltages from 8 to 16 volts, and draws less than 1/8 amp so it can operate from any convenient 12 volt circuit. The controller is also fully weatherproof, so it can be mounted outside of the cab of the truck.

CHAPTER 3

TROUBLESHOOTING GUIDE

There are only 3 (2 for the SeeLevel Special) serviceable components in the system: the gauge module, the plug module, and the controller. The system will function without a plug module, except that the SpillStop indicator will not work.

If problems are encountered, check the following:

1. Is the controller getting at least 8 volts?
2. Are all the wires properly connected, with no short circuits?
3. Are the SeeLevel gauges working properly?
4. Are the gauges programmed properly?
5. If the horn is not sounding, does the horn itself work?

To test the various components, substitute a known good component to see if the rest of the system is working. To test a gauge module, connect the wire to the controller yellow wire, and ground the right hand terminal (looking at the module as it would be mounted, with the pins down and the wire coming out of the right hand side). With no other pins connected, the module should indicate engine shutdown. Grounding the second pin from the left simulates a horn alarm condition, grounding the third pin from the left simulates a mid tank condition, and grounding the fourth pin from the left simulates an empty tank condition.

If the engine will not start, ground the green wire from the controller. If the engine still does not start, the problem is in the relay or associated wiring. If the engine now starts, and the controller indicates no shutdown alarm (or is bypassed), then the controller is bad.

If the horn will not sound, ground the orange wire from the controller. If the horn still does not sound, the problem is in the horn or associated wiring. If the horn now sounds, and the controller indicates a horn alarm that is not bypassed, then the controller is bad.

CHAPTER 4

SERVICE AND WARRANTY INFORMATION

The warranty will apply only if the warranty card shipped with the equipment has been returned to Garnet Instruments Ltd.

Garnet Instruments Ltd. warrants equipment manufactured by Garnet to be free from defects in material and workmanship under normal use and service for a period of one year from the date of sale from Garnet or an Authorized Dealer. The warranty period will start from the date of purchase or installation as indicated on the warranty card. Under these warranties, Garnet shall be responsible only for actual loss or damage suffered and then only to the extent of Garnet's invoiced price of the product. Garnet shall not be liable in any case for labor charges for indirect, special, or consequential damages. Garnet shall not be liable in any case for the removal and/or reinstallation of defective Garnet equipment. These warranties shall not apply to any defects or other damages to any Garnet equipment that has been altered or tampered with by anyone other than Garnet factory representatives. In all cases, Garnet will warrant only Garnet products which are being used for applications acceptable to Garnet and within the technical specifications of the particular product. In addition, Garnet will warrant only those products which have been installed and maintained according to Garnet factory specifications.

LIMITATION ON WARRANTIES

These warranties are the only warranties, expressed or implied, upon which products are sold by Garnet and Garnet makes no warranty of merchantability or fitness for any particular purpose in respect to the products sold. Garnet products or parts thereof assumed to be defective by the purchaser within the stipulated warranty period should be returned to the seller, local distributor, or directly to Garnet for evaluation and service. Whenever direct factory evaluation, service or replacement is necessary, the customer must first, by either letter or phone, obtain a Returned Material Authorization (RMA) from Garnet Instruments directly. No material may be returned to Garnet without an RMA number assigned to it or without proper factory authorization. Any returns must be returned freight prepaid to: Garnet Instruments Ltd., 288 Kaska Road, Sherwood Park, Alberta, Canada T8A 4G7. Returned warranted items will be repaired or replaced at the discretion of Garnet Instruments. Any Garnet items under the Garnet Warranty Policy that are deemed irreparable by Garnet Instruments will be replaced at no

charge or a credit will be issued for that item subject to the customer's request.

If you do have a warranty claim or if the equipment needs to be serviced, contact the installation dealer. If you do need to contact Garnet, we can be reached as follows:

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288 Kaska Road
Sherwood Park, Alberta
Canada T8A 4G7
E-mail: tstalker@garnetinstruments.com