### SEELEVEL ANNIHILATOR

### **Tank Truck Level Gauge**





### MODEL 806-B / 806-Bi MANUAL

**Includes version 2.03 software information** 





### **GARNET SEELEVEL ANNIHILATOR** TM

### Tank Truck Level Gauge

### MODEL 806-B / 806-Bi Includes version 2.03 software information

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### **CHAPTER 1 - OVERVIEW**

ongratulations on purchasing the Garnet Instruments Model 806-B or 806-Bi SEELEVEL ANNIHILATOR ™ Level Gauge for Tank Trucks. The Annihilator is a highly advanced device for liquid level measurement in transport applications. It is designed for reliable, accurate level measurement of non flammable liquids such as water, sewage, sludge, and many chemicals. The liquid level is determined by sensing the position of a magnetic float using a series of reed switches arranged in a vertical sensing bar. This technology has no moving parts except for the float, and can operate over a range of product temperatures from -40 °C to +90 °C (-40 °F to +194 °F).

The ANNIHILATOR™ has been designed to withstand the vibration and shock encountered in mobile applications. The 806-B has a weatherproof display enclosure for mounting outside of the cab of the truck, and the 806-Bi has a very compact sized display enclosure for mounting inside the truck cab. Both operate from 12 volt power, and use the same sender bar in the tank, which is weatherproof and able to withstand steaming temperatures.

The ANNIHILATOR™ can display in any units, such as inches of level, barrels, gallons, or cubic metres of volume. The display has four alarm outputs which can be used to warn of impending overfills or to shut down loading of the truck in an overfill or empty tank situation.

The 817-USB Truck Gauge Programmer is used to program the Annihilator to read the desired calibration units, and to set the alarm points. It is designed to be easily operated by people unfamiliar with electronics or computers.

### **CHAPTER 2 - NEW FEATURES OF THE ANNIHILATOR**

The 806-B (Revision B) version of the Annihilator uses upgraded hardware and software to provide a number of enhancements over the earlier 806 and 806A series.

- 1. The display is multi-compartment, one display can accept up to three sender bars. The compartment number is displayed on the right hand LEDs and a push button is used to select the compartment. The number of compartments actually used in a given application can be programmed into the display so that only those compartments can be selected.
- 2. The display can be programmed directly with the 817-USB Truck Gauge Programmer, no adapter is needed.
- 3. One of the four alarms can function as an automatic self resetting alarm for high level warning. When the alarm is activated by a high level, it can be bypassed (silenced) by pressing the alarm button. When the tank is emptied, the alarm is re-activated for the next time the tank is filled. The status of the bypass is shown on the display.
- 4. The number of compartments, the current compartment number, the LED brightness (806-Bi) and the automatic alarm bypass reset status are retained even if power is removed, so the gauge will return to the same point of operation when power is restored.
- 5. A remote transmitter connection can be used to connect to an 828 Serial Interface.
- 6. The 806-Bi in-cab version has adjustable LED brightness for comfortable viewing in all lighting conditions.
- 7. Version 2.03 has upgraded software so that tank numbers from 4 to 9 can be displayed. This can be used in applications where there are more than 3 compartments being monitored by more than one display.

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### **How the Gauge Works**

The Annihilator gauge consists of a sender bar, a donut shaped float, interconnect wiring, and a display. The sender bar is mounted vertically in the tank with the float sliding up and down around it in accordance with the fluid level. The sender bar sends the fluid level information via two wires to the display, which shows the level in appropriate units and operates the alarms. One display can monitor up to three compartments.

The float contains magnets which activate reed switches inside the stainless steel sender bar to indicate the level of the fluid. The activated switches are detected by the microprocessor at the top of the bar. A pair of wires (one signal and one ground) carry power from the display to operate the sender bar, and also carry the level information signal from the bar to the display. The power level on the signal wire is very low, so there is no danger of sparking or shock from this wire, and short circuits will not cause any damage. The signal from the bar is coded so that it is not affected by most electrical noise, moisture, or corrosion. If the signal is too badly degraded due to poor wiring, the system shuts down rather than showing an incorrect reading.

The display converts the level information to volume according to the calibration programmed into it with the 817-USB Truck Gauge Programmer. The calibration can be in inches or volumetric units such as cubic metres or barrels. The display also contains alarms that can be programmed to operate at specific tank levels and can be used to operate external devices. The in-cab display is enclosed in a compact plastic box which can be easily mounted anywhere in the truck cab, and the outside display is durable enough to withstand weather and indirect road spray. The tank level and compartment number is shown on a large LED (Light Emitting Diode) display which gives good all around visibility. The entire gauge operates from 12 volt truck power, consuming about 1/8 of an amp.

### **Multi Compartment Operation**

One display can have up to 3 sender bars connected (one bar per compartment), which is equivalent to 3 separate displays, except that you can only see one level and have one set of alarms at a time. This allows cost and space savings on the truck or trailer.

The compartment number is shown on the right side of the display, for example, C2 indicates compartment number 2. If the display has been programmed for only one compartment, then the compartment number is not shown.

Each compartment has its own volume and alarm calibration, so the compartments can be completely different in size and shape. When the compartment is changed, the volume display and alarms will change according to the calibration and tank level for the new compartment. If the self resetting alarm has been bypassed, that information is retained for each compartment, even if the compartment is changed or power is turned off.

To change which compartment the display is showing, press the **COMP** button on the right side of the display. Each time the button is pressed, the display will show the next compartment number. The display can also be configured to display compartment 1 with a trailing zero. In this case, only single compartment operation is possible. If the power to the system is turned off, the display retains the compartment number, so that when the power is turned on again, the same compartment will be shown.

Version 2.03 allows the display to show compartments 4 to 9. For example, if an application has 7 compartments, then three displays would be used. The first display would show compartments 1, 2, and 3. The second display would show 4, 5, and 6. The third display would show 7. This makes it much easier for the operator to keep track of which compartment is being monitored.

### **Multi Calibration Operation**

By connecting together 2 or 3 compartment wires on the display, it is possible to have different calibrations for the same tank, for example, gallons and barrels. In this case, instead of indicating compartments, the right display indicates which calibration is selected. Each calibration could have its own alarms as well.

### **Alarm Operation**

Each compartment has 4 alarms which can be set with the 817-USB programmer to turn on or off at any point in the tank. Alarms 1 and 2 are general purpose alarms which can be used for high or low level warnings or for controlling pumps or valves. If Alarm 4 is not used, then Alarm 3 can also be used as a general purpose alarm. These alarms can be programmed to be off below the set point and on above it, or they can be on below the set point and off above it. This allows the devices being controlled to turn on or off as the tank level rises or falls.

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Alarm 4 is a dedicated high level warning alarm that turns on when the tank level rises past the set point. Normally a warning light or horn is connected to this alarm output. When the alarm is on, pressing the **ALARM BYPASS** button on the left side of the display will turn off (bypass) the warning. When the alarm is bypassed, the decimal points on the compartment indicator digits will light up. Pressing the alarm button when the alarm is off has no effect. Once the alarm has been turned off (bypassed), it will remain off until the tank level drops below the Alarm 3 set point, then rises again above the Alarm 4 set point. Alarm 3 is normally set close to the bottom of the tank and is used to clear the bypass. This automatic system protects against the operator forgetting to turn the alarm back on for the next time the truck is loaded. The bypass indicator (compartment decimal points) serves to notify the operator that the alarm has been bypassed.

Each compartment has its own set of alarms and its own bypass memory. The bypass is retained for each compartment even if the compartment is changed or the gauge is turned off and on.

WARNING: The use of alarm points is entirely at the owner's risk due to the nature of connecting external horns or lights, the reliability of external horns or lights, and the reliability of the power source and wiring required to operate them.

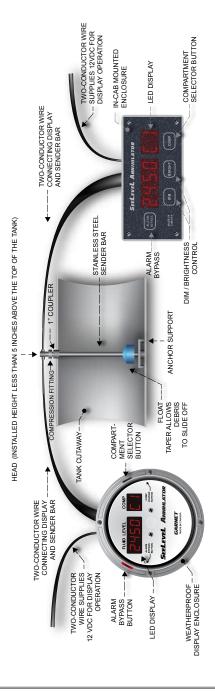
### **Display Brightness (806-Bi only)**

The 806-Bi (in-cab model) has three brightness levels for the LED display to allow comfortable viewing in all lighting conditions. To increase the display brightness, press the **BRIGHT** button. Each time the button is pressed, the brightness is increased. When the maximum brightness has been reached, pressing the **BRIGHT** button has no effect. Similarly, to decrease display brightness, press the **DIM** button. The brightness level is retained in memory even if the gauge is turned off and on.

### **Installation Overview**

Installation of the gauge consists of cutting a hole in the top of each tank compartment and welding in a 1 inch coupler, and welding an anchor assembly to the bottom of the tank. The sender bar is cut to length, the end is sealed, and it is inserted from the top of the tank and fastened at the top with a compression fitting. The display is mounted at a convenient point on the truck or in the cab, and the wiring is run between the bar and the display. 12 volt power is brought into the display, any alarms are wired up, and the display is programmed with volume and alarm information. The bar can be removed later for service by disconnecting the wires, unscrewing the compression fitting, and pulling it out.

### **GENERAL MECHANICAL ASSEMBLY**



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### **CHAPTER 4 - UNIQUE FEATURES**

The Annihilator gauge has been designed for maximum ease of installation and servicing, and for best operational features. The anchor at the bottom of the tank provides a shock mount for the float, and holds the float in place if the sender bar is removed so no tank entry is required for bar replacement. If the new bar is cut to the same length as the old, no re-calibration is required.

The float is molded from polyethylene for high chemical resistance, good esthetic appearance, and high durability due to the "give" in the plastic. The light weight of the polyethylene allows the float size to be minimized while allowing it to float on the lowest density products.

The sender bar has no moving parts and is completely filled with potting material to enhance reliability. The use of a digital rather than analog sensing technique ensures high accuracy with no drift or degradation. To accommodate different tank sizes, the bar is simply cut to length with a hacksaw, and the cut end sealed with a cap to prevent moisture or product contamination. This way only one size needs to be stocked, and a perfect fit is ensured. The sender bar top is very low in profile to satisfy rollover requirements; the maximum height is less than 4 inches above the top of the tank so that it will not protrude above the spillway.

The outside (806-B) display enclosure is waterproof, and the internal circuitry is also protected against moisture by a coating. The small size of all of the display enclosures also makes it easy to find an appropriate mounting location.

The use of an on-site programmer eliminates downtime waiting for factory calibration parts, and allows easy reprogramming should the need arise. The entire display, including decimal point, is completely programmable to whatever units are desired. In addition to numbers, the letters F, U, L, and E can be programmed to provide displays such as FULL, E, etc.

### CHAPTER 5 - SENDER BAR LIMITS OF RESISTIVITY

The temperature of the product being transported should be limited to approximately +90°C (+194°F). Damage to the float and sender bar can occur if this value is exceeded.

The tube used in the manufacturing of the sender bar is seamed 302/304 stainless steel. Seamless 316 stainless steel is optionally available. It should be noted that certain corrosive products, as well as high concentrations of acid products, may attack the stainless steel and cause perforations to develop. It is the operator's responsibility to determine the products compatibility with the sender bar.

### WARNING: Perforation of the sender bar or heat damage is not warrantable.

The Loctite products used to secure the end cap can be attacked by certain chemicals as well. For reference, a chemical resistance chart from Loctite showing product compatibility with various chemicals can be found on the following pages.

The 680 retaining compound we specify is similar to Loctite #592, 567, 565, 569, 545, 580, 571, 242, 577, 572, 542, 565, 545, 243. If you require more information, please call the Loctite Corporation, in Canada, 1-800-263-5043, in USA, 1-800-562-8483.

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### **FLUID COMPATIBILITY CHART**

### for metal threaded fittings sealed with Loctite® Sealants

### LIQUIDS, SOLUTIONS & SUSPENSIONS

LEGEND:	Bagasse Fibers Barium Acetate Barium Carbonate	····•	Chloroform Dry  Chloroformate Methyl	Ferrous Chloride	Ion Exclusion Glycol	Nickel Chloride
All Loctite® Anaerobic Sealants are	Parium Carbonate		Chloroformate Methyl	Ferrous Oxalate  Ferrous Sulfate10%	Irish Moss Slurry	Nickel Cyanide Nickel Fluoborate
Compatible Including #2429, 243,	Barium Chloride		Chlorosulfonic Acid	Ferrous Sulfate (Sat)	Iron Ovide	Nickel Ore Fines
542, 545, 565, 567, 569, 571, 572, 577, 580, 592			Chrome Acid Cleaning	Fertilizer Sol	Iron Oxide	Nickel Ore Fines Nickel Plating Bright
†    Ise   octite® #270 271™ 277 554	Barium Sulfate		Chrome Liquor	Fertilizer Sol  Flotation Concentrates	Isobutyraldehyde	Nickel Sulfate
■ Not Recommended □<10% (same as ●) >10% (same as†)	Battery Acid		Chrome Plating Bath	Fluoride Salts	Isooctane	Nicotinic Acid
10% (same as ●)	Battery Acid Battery Diffuser Juice		Chromic Acid 10%	Fluorine Gaseous or Liquid •	Isooctane	Nitrate Sol
>10% (same as†)	Bauxite (See Alumina)	•	Chromic Acid 50% (cold)■	Fluorolube	Isocvanate Resin	Mitration Acid(s)
* <5% (same as •)	Bentonite	•	Chromic Acid 50% (hot)	Fluosilic Acid	Isopropyl Acetate	Nitric Acid Nitric Acid10%
>5% (same as †)  • Use Loctite® #242®, 243, 290, 565	Benzaldehvde	•	Chromium Acetate	Flux Soldering	Isopropyl Ether	Nitric Acid10%
▼ USB EUCULB® #242®, 243, 230, 363	Benzene	•	Chromium Chloride	Fly Ash Dry  Foam Latex Mix	Itaconic Acid	Nitric Acid 20% Nitric Acid Anhydrous
	Benzene Hexachloride	•	Chromium Sulfate	Foam Latex Mix		Nitric Acid Anhydrous
Abrasive Coolant	Benzene in Hydrochloric Aci	d•	Classifier	Foamite	Jet Fuels	Nitric Acid Furning Nitro Aryl Sulfonic Acid
Acetaldehyde Acetate Solvents	Benzoic Acid	•	Clay	Formaldehyde (cold)	Jeweler's Rouge	Nitro Aryl Sulfonic Acid
Acetate Solvents	Benzotriazole Beryllium Sulfate	:	Goal Slurry	Formaldehyde (cold)	Jig Table Slurry	Nitrobenezene-Dry
Acetimide	Beryllium Suitate	•••••	Coal Tar  Cobalt Chloride	Formic Acid (Dil cold)	Kaolin-China Clay §	Nitrocellulose
Acetic Acid	Bicarbonate Liquor Bilge Lines		Copper Ammonium Formate	Formic Acid (cold)	Kelp Slurry	Nitrofurane Nitroguanidine
Acetic Acid - glacial	Bleach Liquor		Copper Chloride	Formic Acid (hot)†	Kerocene •	Nitroparaffins-Dry
Acetic Anhydride	Bleached Pulps		Copper Cyanide	Freon §	Kerosene  Kerosene Chlorinated	Nitrosyl Chloride
Acetone	Borax § Liquors	•	Copper Liquor •	Fuel Oil	Ketone	Norite Carbon
Acetyl Chloride	Boric Acid	•	Copper Liquor  Copper Naphthenate	Fuming Nitric Red		Nuchar
Acetylene (Liquid Phase)	Brake Fluids	•	Conner Plating Acid Process	Fuming Sulfuric	Lacquer Thinner	
Acid Clay	Brake Fluids Brine Chlorinated	•	Conner Plating Alk Process	Fuming Oleum	Lactic Acid  Lapping Compound	Oakite § Compound
Acid Clay	Brine Cold		Conner Sulfate	Furfural	Lapping Compound	Oil, Creosote Oil, Emulsified
Acrylonitrile	Bromine Solution	t	Core Oil		Latex-Natural	Oil. Emulsified
Activated Alumina	Butadiene			Gallic Acid ★	Latex-Synthetic	Oil, Fuel
Activated Carbon	Butadiene		Creosote  Greosote-Cresylic Acid	Gallic Acid	Latex Synthetic Haw	Oil, Fuel Oil, Lubricating
Activated Silica			Creosote-Cresylic Acid	Gasoline-Acid Wash	Laundry Wash Water	Oil, Soluble Oleic Acid, hot
Alcohol-Allyl	Butyl Amine	•	Cyanide Solution	Gasoline-Alk. Wash	Laundry Bleach	Oleic Acid, hot
Alcohol-Amyl	Butyl Amine	•	Cyanuric Chloride	Gasoline Aviation	Laundry Blue	Oleic Acid, cold Ore Fines-Flotation
Alcohol-Benzyl	Butyl Chloride	•	Cyclohexane	Gasoline Copper Chloride	Laundry Soda	Ore Fines-Flotation
Alcohol-Butyl	Butyl Ether - Dry	•	Cylinder Oils	Gasoline Ethyl	Lead Arsenate	Ore Pulp
Alcohol-Ethyl	Butyl Lactate	•	D. 1	Gasoline Motor	Lead Oxide	Organic Dyes Oxalic Acid cold
Alcohol-Furfuryl	Butyral Resin	•	De-Ionized Water  De-Ionized Water Low	Gasoline Sour  Gasoline White	Lead Sulfate  Lignin Extract	Uxalic Acid cold
Alcohol-Hexyl  Alcohol-Isopropyl	Butyraldehyde Butyric Acid	····•	De-Ionized Water Low	Gasoline White	Lignin Extract	Ozone, wet
Alcohol Mothyl	Butyric Acid	Ц	Conductivity	Gluconic Acid  Glue-Animal Gelatin	Lime Slaked	Paint-Linseed Base
Alcohol-Methyl	Cadmium Chloride	_	Detergents  Developer, photographic	Glue-Plywood	Liquid Ion Exchange	Paint Water Page
Alum-Ammonium	Cadmium Plating Bath		Developer, priotographic	Glutamic Acid	Lithium Chloride	Paint-Uniseed Base Paint-Water Base Paint-Remover-Sol. Type
Alum-Chrome	Cadmium Sulfate		Dextrin	Glycerine Lye-Brine	LOX (Liquid 02)	Paint-Vehicles
Alum-Potassium	Calcium Acetate		Diammonium Phorphata	Glycerol	Ludox	Palmitic Acid
Alum-Sodium	Calcium Bisulfate		Diamilionium r nospilate	Glycine	Lye	Paper Board Mill Waste
Alumina	Calcium Carbonate		Diamylamine  Diatomaceaus Earth Slurry	Glycine  Glycine Hydrochloride	Ly0	Paper Coating Slurry
Aluminum Acetate	Calcium Chlorate	•	Diazo Acetate	Glycol Amine	Machine Coating Color	Paner Puln
Aluminum Bicarbonate	Calcium Chloride	•	Dibutyl Phthalate	Glycolic Acid	Magnesite Slurry	Paper Pulp Paper Pulp with Amun
Aluminum Bifluoride	Calcium Chloride Brine	•	Dichlorophenol	Glynxal	Magnesite	Paper Pulp with Dye
Aluminum Chloride	Calcium Citrate	•	Dichlorophenol  Dichloro Ethyl Ether	Gold Chlorida	Mannesium Rigulfite	Danas Dula blasshad
Aluminum Sulfate	Calcium Ferrocyanide	•	Dicyandamide  Dielectric Fluid  Diester Lubricants	Gold Cyanide		Paper Pulp, bleached-washed Paper Pulp Chlorinated Paper Groundwood
Ammonia Anhydrous	Calcium Formate Calcium Hydroxide Calcium Lactate	•	Dielectric Fluid	Granodine	Magnesium Chloride  Magnesium Hydroxide	Paper Pulp Chlorinated
Ammonia Solutions	Calcium Hydroxide	•	Diester Lubricants	Grape Pomace Graphite	Magnesium Hydroxide	Paper Groundwood
Ammonium Bisulfite	Calcium Lactate	•	Diethyl Ether Dry	Grease Lubricating		Paper Rag Paper Stocks, fine
Ammonium Borate	Calcium Nitrate	•		Green Soap  Grinding Lubricant	Maleic Acid	Paper Stocks, fine
Ammonium Bromide	Calcium Phosphate	•	Diethylamine  Diethylene Glycol	Grinding Lubricant	Maleic Anhydride	Paradichlorobenezene
Ammonium Carbonate	Calcium Silicate Calcium Sulfamate	•	Diethylene Glycol	Grit Steel	Maleic Acid	Paraffin Molten
Ammonium Chloride			Diglycolic Acid  Dimethyl Formamide	Gritty Water	Manganese Surrate	Paraffin Oil
Ammonium Chromate	Calcium Sulfate	•	Dimethyl Formamide	Groundwood Stock	Melamine Resin	Paraformaldehyde Pectin Solution Acid
Ammonium Fluoride	Calcium Sulfite	•	Dimethyl Sulfoxide	GRS Latex	Menthol	Pectin Solution Acid
Ammonium Fluorosilicate  Ammonium Formate	Camphor	•	Dioxane Dry	Gum Paste  Gum Turpentine	Mercaptans  Mercuric Chloride	Pentachlorethane
Ammonium Hvdroxide	Carbolic Acid (phenol)		Dioxidene	Gum Turpentine	Mercuric Unioride	Pentaerythritoi Soi
Ammonium Hydroxide  Ammonium Hyposulfite	Carbon Bisulfide	⊔	Dipentene - Pinene	Gypsum	Mercuric Nitrate	Perchlorethylene (Dry)
Ammonium Hyposumte  Ammonium Iodide	Carbon Black		Diphenyl	Halane Sol	Mercury	Perchloric Acid Perchloromethyl Mercaptan .
Ammonium Molybdate	Carbon Black		Dowtherm §	Halogen Tin Plating	Methane	Permanganic Acid
Ammonium Nitrate	Carbonic Acid		Device Oil	Helewey C	Methane  Methyl Alcohol	Persulfuric Acid
Ammonium Oxalate	Carbowax §		Drying Oil  Dust-Flue (Dry)	Halowax § Harvel-Trans Oil	Methyl Acetate	Petroleum Ether
Ammonium Persulfate	Carboxymethyl Cellulose		Dye Liquors	Heptane	Methyl Bromide	Petroleum Jelly
Ammonium Phosphate	Carnauba Wax	•		Hexachlorobenzene	Methyl Carbitol	Petroleum Jelly Phenol Formaldehyde Resins
Ammonium Picrate	Casein	•	Emery - Slurry	Hexadiene	Methyl Cellosolve §	Phenol Sulfonic Acid
Ammonium Sulfate	Casein Water Paint	•	Emulsified Oils	Hexadiene  Hexamethylene Tetramine	Methyl Chloride	Phenolic Glue
Ammonium Sulfate Scrubber	Celite	•	Enamel Frit Slip	Hexane	Methyl Ethyl Ketone	Phloroglucinol
Ammonium Sulfide	Cellosolve 8	•	Esters General	Hvdrazine	Methyl Isobutyl Ketone	Phosphate Ester
Ammonium Thiocyanate	Cellulose Puln	•	Ethyl Acetate  Ethyl Alcohol	Hudrazina Hudrata	Methyl Lactate	Phosphatic Sand
Amyl Acetate	Cellulose Xanthate Cement Dry/Air Blown		Ethyl Alcohol	Hydrobromic Acid	Methyl Orange	Phosphoric Acid 85% hot
Amyl Amine  Amyl Chloride	Cement Dry/Air Blown		Ethyl Amine Ethyl Bromide	Hydrochloric Acid	Methylamine  Methylene Chloride	Phosphoric Acid 85% cold
Amyl Chloride	Cement Grout	•	Ethyl Bromide	Hvdrocvanic Acid	Methylene Chloride	Phosphoric Acid 50% hot
Aniline	Cement Slurry Ceramic Enamel	•	Ethyl Cellosolve §	Hydroflouric Acid	Mineral Spirits  Mixed Acid, Nitric/Sulfuric	Phosphoric Acid 50% cold
Aniline Dyes	Geramic Enamel	•	Ethyl Cellosolve Slurry §	Hydrogen Peroxide (dil)	Mixed Acid, Nitric/Sulfuric	Phosphoric Acid 10% cold
Anodizing Bath	Ceric Oxide	•	Ethyl Formate	Hydrogen Peroxide (con)†		Phosphoric Acid 10% hot
Antichlor Solution  Antimony Acid Salts	Chalk	•	Ethyl Silicate  Ethylene Diamine	Hydroponic Sol	Morpholine	Phosphorous Molten
Antimony Acid Salts	Chemical Pulp Chestnut Tanning	•	Ethylene Diamine  Ethylene Dibromide	Hydroquinone  Hydroxyacetic Acid	Mud	Phosphotungstic Acid Photographic Sol
Antimony Oxide  Antioxidant Gasoline	Chestnut lanning China Clay		Ethylene Dibromide  Ethylene Dichloride	Huno	Nalco Sol	Photographic Sol Phthalic Acid
Antioxidant Gasoline  Aqua Regia	China Clay Chloral Alcoholate		Ethylene Chrol	Hypo	Nanktha	Directoto
			Ethylene Glycol	rrypociliorous Acid	Naphtha • Naphthalene • Naval Stores Solvent. •	Phytota Calte
Argon	Chloramina				Naprillalelle	Firsting Apid Culturin
Argon	Chloramine	:		Ink •		
Argon	Chloramine	:			Nematoride	Pierie Acid Solutions
Argon	Chloramine	:	Fatty Acids	Ink in Solvent-Printing	Nematocide	Picric Acid Solutions Pine Oil Finish
Argon  Armeen §  Arochlor §  Aromatic Gasoline  Aromatic Solvents	Chloramine	:	Fatty Acids  Fatty Acids Amine  Fatty Alcohol	Ink in Solvent-Printing	Nematocide	Picric Acid Solutions Pine Oil Finish
Argon Armeen § Arochlor § Aromatic Gasoline Aromatic Solvents	Chloramine	<u>:</u>	Fatty Acids  Fatty Acids Amine  Fatty Alcohol	Ink in Solvent-Printing	Nematocide	Phytate Salts Pickling Acid, Sulfuric Picric Acid Solutions Pine Oil Finish
Argon	Chloramine Chlorinated Hydrocarbons . Chlorinated Paperstock Chlorinated Solvents Chlorinated Sulphuric Acids Chlorinated Wax Chlorine Dioxide		Fatty Acids	Ink in Solvent-Printing.  Iodine in Alcohol  Iodine-Potassium Iodide  Iodine Solutions.	Nematocide	Picking Acid Solutions. Pine Oil Finish
Argon  Armeen §  Arochlor §  Aromatic Gasoline  Aromatic Solvents  Aromatic Solvents  Aromatic Solvents  Aromatic Solvents  Aromatic Solvents  Arsenic Acid  Asbestos Slurry	Chloramine Chlorinated Hydrocarbons . Chlorinated Paperstock . Chlorinated Solvents . Chlorinated Sulphuric Acids Chlorinated Wax Chlorine Dioxide . Chlorine Liquid	:	Fatty Acids Fatty Acids Amine Fatty Alcohol Ferric-Floc Ferric Chloride Ferric Nitrate	Ink in Solvent-Printing	Nematocide	Picric Acid Solutions
Argon  Armen §  Arochlor §  Aromatic Gasoline  Aromatic Solvents  Arsenic Acid	Chloramine Chlorinated Hydrocarbons . Chlorinated Paperstock Chlorinated Solvents Chlorinated Sulphuric Acids Chlorinated Wax Chlorine Dioxide	:	Fatty Acids	Ink in Solvent-Printing.  Iodine in Alcohol  Iodine-Potassium Iodide  Iodine Solutions.	Nematocide	Piccia Acid Solutions. Pine Oil Finish

### Loctite product numbers in red are worldwide or application-specific products

(This is a list of chemical stability only. If does not constitute approved for use in the processing of food, drugs, cosmetics, pharmaceuticals, and injestible chemicals.) Locatife' scalaris are not recommended for use in pure oxygen or chlorine environments or in conjunction with strong oxidizing agents, are explosive reaction can result.





### **FLUID COMPATIBILITY CHART**

### for metal threaded fittings sealed with Loctite® Sealants

### LIQUIDS, SOLUTIONS & SUSPENSIONS

### LEGRID: • All Lottle<sup>®</sup> Anterobb Selaints are Compatible including FXEV<sup>®</sup>, 24.3, 27.7, 28.0, 29.7, 27.7, 2 River Water...... Road Oil .......... Roccal..... Rosin-Wood ..... Rosin in Alcohol Rosin Size ..... Rubber Latex Salf Alkaline Salf Electrolytic Salf Refrg. Sand-Air Blown Slurry Sand-Air Phosphatic Sea Coal Sea Water Selenium Chloride Sequestrene Sewage Shellac Shower Mater Gold Cyanide ... Iron-Acid ...... Lead-Fluoro ... Nickel Bright ... Shower Water Silica Gel ..... Silica Ground ...... Silicone Tetrachloride Silicone Fluids Nickel Bright Platinum Silver-Cyanide Tin-Acid Tin-Acid Tin Alk Barrel Zinc Acid Zinc Aki Cyanide Polyacrylonitrile Slurry Polypentek Polysulfide Liquor Polysulfide Liquor Polynyil Acetate Slurry Polypinyil Acetate Slurry Silicone Fluids Silver Cyanide Silver I Odidie-Aqu Silver Nitrate Silver Nitrate Size Emulsion Skelly Solve E, L Siate to 400 Mesh Soap Lye. Soap Solutions (Stearates) Soap Stone Air Blown Polyvinyl Chloride ... Porcelain Frit ..... Soda Pulp ...... Sodium Acetate Sodium Acetate Sodium Acid Fluoride Sodium Aluminate Sodium Arsenate Sodium Benzene Sulfonate Sodium Bichromate Sodium Bisulfite Sodium Bromide Potash Potassium Acetate Potassium Alum Sulfate Potassium Bromide Potassium Carbonate Potassium Chlorate Potassium Chlorate Potassium Chlorate Potassium Chlorate Potassium Chlorate Potassium Chlorate Potassium Cyanide Sol... Potassium Dichromate ... Potassium Ferricyanide Potassium Hydroxide... Sodium Cyanide ..... Sodium Ferricyanide Sodium Ferricyanide Sodium Glutamate Sodium Glutamate Sodium Hydrogen Sulfate Sodium Hydrosulfite Sodium Hydrosulfite Sodium Hydrosulfide Sodium Hydrochloride Sodium Hydrochloride Sodium Hydro. 20% cold Sodium Hydro. 20% cold Sodium Hydro. 20% cold Sodium Hydro. 20% bot. Potassium Persulfate. Potassium Phosphate Potassium Silicate .... Potassium Sulfate .... ssium Xanth Sodium Hydro. 20% hot. Sodium Hydro. 50% cold Sodium Hydro. 50% cold Sodium Hydro. 50% hot. Sodium Hydro. 70% cold Sodium Hydro. 70% hot. Sodium Hydro. 70% hot. Sodium Hydro. 70% hot. Sodium Mittal Sodium Molten Sodium Mitrate Sodium Nitrate Sodium Nitrate Press Board Waste .. Propionic Acid ...... Propyl Alcohol ...... Propyl Bromide .... Propylene Glycol ... Sodium Persulfate..... Sodium Phosphate-Mono ... Sodium Phosphate-Tri ... Sodium Phosphate-Tri ... Sodium Potassium Chloride ... Sodium Salicylate Sodium Salicylate Sodium Silicate ... Sodium Silicate ... Sodium Silcofluoride ... Sodium Stannate ... Rag Stock Bleached Rare Earth Salts Rayon Acid Water Rayon Spin Bath Rayon Spin Bath spent Resorcinol

Sodium Sulfate	l oluene
Sodium Sulfide	p-Toluene Sulfonic Acid
Sodium Sulfite	Transil Oil
Sodium Sulfhydrate	Trichloracetic Acid
Sodium Thiocyanate	Trichlorethane 1,1,1
Sodium Thiosulfate	Trichlorethylene
Sodium Tungstate	Trichlorethylene-Dry
Sodium Xanthate	Tricresyl Phosphate
Soululli valitilate	Titclesyl Filospilate
Solox-Denat. Ethanol	Triethanolamine
Soluble Oil	Triethylene Glycol
Solvent Naphthas	Trioxane
Sorbic Acid	Tungstic Acid
0 0!'	
Sour Gasoline	Turpentine
Soybean Sludge-Acid	
Spensol Solution  Stannic Chloride	UCON § Lube
Stannic Chlorida	Udvlite Bath-Nickel
Starch	Undecylenic Acid
OldIUI	
Starch Base Stearic Acid Steep Water	Unichrome Sol. Alk
Stearic Acid	Uranium Salts
Steen Water	Uranyl Nitrate
Sterilization Steam	Uranyl Sulfate
	Unanyi Guilate
Stillage Distillers	Urea Ammonia Liquor
Stoddard Solvent	
Styrene Butadiene Latex	Vacuum to 100 Micron
Styrene Butadiene Latey	Vacuum below 100 Micr
Sulfamic Acid	Vacuum Oil
Outland Cuttoria Ashadalda	Vanadium Pentoxide
Sulfan-Sulfuric Anhydride●	
Sulfathiazole	Slurry
Sulfite Liquor	Varnish
Sulfite Stock	Varsol-Naphtha Solv
Sulfonated Oils	Varsor-Napritria Golv
	Versene §
Sulfones	Vinyl Acetate Dry or
Sulfonic Acids	Chloride Monomer Vinyl Chloride Latex Emul
Sulfonyl Chloride	Vinyl Chloride Latey Emul
Sulfur Slurry	Vinyl Resin Slurry
ouliul olully	VIIIyi nesiii Siuriy
Sulfur Solution	Viscose
in Carbon Disulfide	Vortex-Hydroclone
Sulphuric Acid 0-7%†	-
Sulphuric Acid 7-40%	Water-Acid - Below pH7
	Water - 117 to 0
Sulphuric Acid 40-75%†	Water pH7 to 8
Sulphuric Acid 75-95%	Water Alkaline - Over pH8
Sulphuric Acid 95-100%■	Water Mine Water
Sulphurous Acid†	Water Potable
Sulfuryl Chloride	Water River
Ourforte street	Water Cond
Surfactants	water Sandy
Synthetic Latex	Water Sandy Water "White" - low pH
	Water "White" - high pH
Taconite - Fines	Wax
Talc - Slurry	Wax Chlorinated
Tall: " Sitting	Wax Ciliotillateu
Tankage - Ślurry	Wax Emulsions
Tannic Acid (cold)†	Weed Killer Dibromide
Tamin	Weisberg Sulfate Plating
Tar & Tar Oil	Wood ground pulp
Tartaric Acid	Wort Lines
	WUIT LINES
Television Chemicals	
Tergitol §	X-Ray Developing Bath
Terpineol •	
	Xvlene
	Xylene
Tetraethyl Lead	Xylene
Tetraethyl Lead  Tetrahydrofuran	Zelan
Tetraethyl Lead  Tetrahydrofuran  Tetranitromethane	ZelanZeolite Water
Tetraethyl Lead  Tetrahydrofuran  Tetranitromethane	ZelanZeolite Water
Tetraethyl Lead • Tetrahydrofuran • Tetranitromethane • Textile Dyeing •	Zelan Zeolite Water Zinc Acetate
Tetraethyl Lead  Tetrahydrofuran  Tetranitromethane  Textile Dyeing  Textile Finishing Oil	Zelan
Tetraethyl Lead Tetrahydrofuran Tetranitromethane Textile Dyeing Textile Finishing Oil. Textile Printing Oil	Zelan
Tetrathyl Lead	Zelan
Tetraethyl Lead  Fetrahydrofuran  Tetranitromethane  Fextile Dyeing  Textile Printing Oil  Textile Printing Oil  Thiocyanic Acid  Thiodycalic Acid	Xylene.  Zelan Zeolite Water Zinc Acetate Zinc Bromide Zinc Chloride Zinc Cyanide-Alk Zinc Fines Surry
Tetrathyl Lead  Fetrahydrofuran  Fetrahydrofuran  Fetrahiltromethane  Textile Dyeing  Fextile Finishing Oil  Fextile Frinting Oil  Textile Acid  Thiogylocoliic Acid  Thioghycoliic Acid	Xylene.  Zelan Zeolite Water Zinc Acetate Zinc Bromide Zinc Chloride Zinc Cyanide-Alk Zinc Fines Surry
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Tetrasthy Lead  Etrahydrofruan  Etrahydrofruan	Xylene
Tetrasthy Lead  Etrahydrofruan  Etrahydrofruan	Xylene
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### GASES

Acetylene
Ammonia
Butane Butadiene Gas/Liquid Butylene Gas/Liquid By-Product Gas (Dry)
Carbon Dioxide  Carbon Monoxide  Carbon Monoxide  Chiloride Dry  Chlorine Dry  Chlorine Wet  Coke-oven Gas-cold  Coke-oven Gas-hot  Cyanogen Chloride  Cyanogen Gas  Cyanogen Gas
Ethane
Freon § (11-12-21-22)† Furnace Gas hot† Furnace Gas cold
Gas drip oil
Helium Hydrogen Gas-cold Hydrogen Chloride Hydrogen Cyanide Hydrogen Sulfide wet & dry
Isobutane  Methane  Methyl Chloride
Natural gas dry
Oil-Solvent Vapor  Oxygen
Producer Gas 50 PSI  Propane  Propylene
Steam High Pressure (≤ 70 psi).■ Steam Low Pressure (≤ 70 psi).● Sulfur Dioxide. ● Sulfur Dioxide dry. ● Sulfur Trioxide Gas. ■ Sulfur Trioxide Gas.

NOTE: 1. The above information does not constitute a recommendation of sealant use. It is intended only as a guide for consideration by the purchaser with the expectation of favorable confirming best results. It is impossible to lest sealant reaction with the multitude of chemicals in existence, therefore, compatibility has been estimated based on an existence described. Easing of not consider described as a formation is suggested. Easing of not consider chemicals is not recommended.

2. With the stringent action of such chemicals as French contained and cusation, through evaluation is suggested. Easing of not consider chemicals is not recommended.

§Listing(s) may be Brand Name(s) or Trademarks for chemicals of Corporations other than Loctite

Locate product numbers in red are workfeide or application-specific products.

(This is a list of thermical stability only. It does not constitute approval for use in the processing of foods, drugs, coemetics, pharmaceuticals, and ingestible chemicals Locates isolated air not recommended for use in pure copyan or officient environments or in comparcion with strong coolizing agents, an explosir reaction can result.

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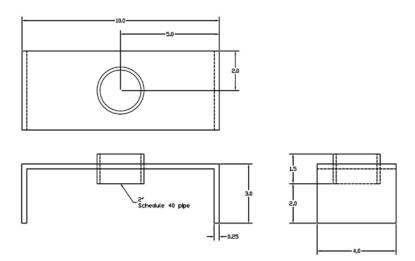
### Loctite Industrial

Loctite Corporation 1001 Trout Brook Crossing Rocky Hill, Connecticut 06067 1-800-LOCTITE (562-8483) www.loctite.com

### **CHAPTER 6 - INSTALLATION GUIDE**

- Pick a spot in the tank for the sender bar(s) to be mounted. It should be as close to the middle of the tank compartment as possible. Make sure that the float will not contact any baffles or other obstructions in the tank. It is preferable if the float can be accessed from the hatch, to make any future service work easier. For this reason **do not** mount the float behind a baffle where it can't be reached from the hatch.
- 2. Drill or cut a hole in the top of the tank to mount a 1" NPT coupler (not provided). Weld the top coupler in place.
- 3. Slide the compression fitting over the sender bar, threads facing down, and insert the bar through the coupler and align it vertically in the tank. Determine how much material needs to be cut off the bottom of the bar. The bar should be mounted between 1" and 1.5" off the bottom of the tank to allow for tank expansion and contraction. Cut the bar with a hack saw and trim exposed circuit board with a sharp knife. Do not use a disk type cutoff saw since the heat generated will short circuit the internal circuit board.
- **Ensure that the compression fitting is on the bar** and clean the end of the bar and the inside of the end cap with Loctite 7070 Cleaner. Spray Loctite T7471 Primer onto both the end of the bar and the inside of the end cap. Allow the primer to dry for a few minutes. Apply a bead of Loctite 680 Retaining Compound around the bottom of the tube and around the top of the end cap. Insert the cap onto the end of the tube with a turning motion. To remove entrapped air, place the end on the floor and rock the bar until excess air has escaped. Heat the end cap modestly with a butane torch or an electric heat gun until the end cap is guite hot to touch (but not over boiling). Keep the end cap in position by gently clamping the bar in a vise with the end against a solid object. Avoid setting the end cap against a cold floor, as this will slow the curing process. Reheat the end cap after 10 or 15 minutes with the cap restrained in position to allow curing to continue. The curing time should be about an hour. The Loctite must be set before the tank is put into service. Bar failure due to a leaking end cap is NOT covered by warranty. Note that a kit with all the required Loctite products is available from Garnet. For further details on the Loctite products see Technical Service Bulletin #17 on our web site.
- 5. Make up an anchor by cutting a 4" X 16" piece of 1/4" thick material. Bend each end down at 90 degrees (see the diagram below), so the resulting flat piece is about 4" X 10" inches with

3" sides. Drill a hole to insert a 2" ID schedule 40 pipe in the center of the plate, weld tube to plate. Insert the bar into the tank and slide the anchor assembly over the sensor bar with the "**U**" facing down. Align the sensor bar vertically and weld the anchor in place to the bottom of the tank. Pull the sensor bar up a bit and slide the float (cone side up) over the bar. Lower the bar back into the anchor.



6. Tighten the base of the compression fitting into the coupler. Lift the bar 2 inches off the bottom of the tank, and tighten down the compression fitting nut. Raise and lower the float a few inches to set the bottom reading.

### FOR THE OUTSIDE (806-B) DISPLAY FOLLOW THESE STEPS:

- 7. Pick a spot for the display. It should be easy to see and out of direct road spray and protected from driving rain. Mount the display enclosure using the mounting flange holes, being certain to shim the enclosure away from the mounting surface with the spacers provided to allow water drainage. Broken display enclosures caused by water freezing behind the enclosure are NOT covered by warranty.
- 8. Route the sender bar wires together to the display, a cord is recommended, which will fit into a brass ¼" NPT fitting or a good strain relief that is water tight, you will install it in the bottom half of the Betts housing. Water leaks are a threat to the system, be sure to vent the Betts housing by drilling another hole in the bottom using one of two methods:

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- a. If the readout is being housed in a box for weather protection, you may simply drill a 1/8 inch hole beside the brass fitting as near vertical as possible.
- b. If the readout is exposed to the elements, install another ¼" NPT brass fitting with a 3-4 inch piece of ¼" Synflex extending out of the fitting with a 45 degree slice at the termination point to prevent a sucking action in the airstream.
- 9. Inspect the head cap with the display circuitry for casting flash, and lightly sand or scrape off any casting protrusions. Make sure that there is grease on the rubber O-ring.

### FOR THE inside (806-Bi) DISPLAY FOLLOW THESE STEPS:

- 10. Pick a spot for the display. Make sure that the display is visible from the driver's seat and from the door. Make up a bracket to hold the box in position and mount the box, but leave the front panel off. The front panel is held on by the four small Phillips screws in the corners. DO NOT remove the two larger Robertson screws.
- 11. Route the sender bar wires together in a protective jacket to the display in the truck cab, drill an entry hole for the wires to enter the back of the box and connect as listed below in the chart.
- 12. When you are ready to fasten on the front panel with the four Phillips screws in the corners, remember that the screws are small so **do not** over tighten them. The screws are in soft plastic so they do not need to be really tight to keep from backing out.

### FOR BOTH DISPLAY TYPES FOLLOW THESE STEPS:

At the display, use the terminal blocks to connect the wiring according to this table.

TERMINAL	CONNECTION
GND	Truck ground and <b>BLACK</b> bar wire(s)
+12V	12 volt ignition power source (fused: see below) *
COMP 1	YELLOW wire from comp #1 bar
COMP 2	YELLOW wire - comp #2 bar (if used)
COMP 3	YELLOW wire - comp #3 bar (if used)
ALARM 1	External device controlled by alarm 1
ALARM 2	External device controlled by alarm 2
ALARM 3	External device or reset point for Alarm 4 **
ALARM 4	Warning light or horn **
REMOTE	For connecting to 828
COMP BUT	Compartment button switch
ALRM BUT	Alarm bypass button switch

**<sup>\*</sup>NOTE:** Connect +12 Vdc power source via a minimum 1-amp fuse.

### For version 2.03

TERMINAL	CONNECTION
COMP 1	YELLOW wire from comp #1, #4, or #7 bar
COMP 2	<b>YELLOW</b> wire from #2, #5, or #8 bar (if used)
COMP 3	<b>YELLOW</b> wire from comp #3, #6, or #9 bar (if used)

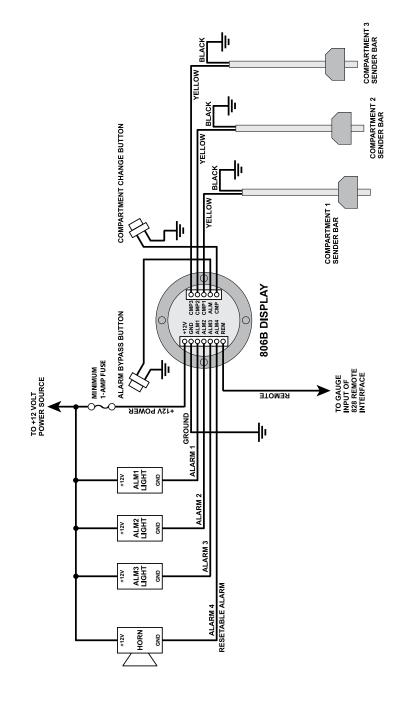
- 13. You may want to put a switch in the power line to shut off the display if the light from the LED's would be annoying at night. It is recommended that this switch be located in the dashboard.
- 14. Note that the alarms provide a circuit connection to ground when they turn on. If the alarm load is more than 1-amp, a relay should be used to prevent damage to the alarm outputs.

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<sup>\*\*</sup>NOTE: Alarm 3 can behave the same way as Alarm 1 and 2, or Alarm 3 can be used as the reset point for Alarm 4.

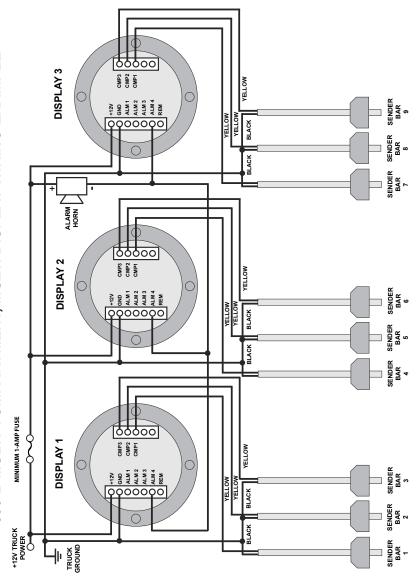
- 15. The other terminals on the Compartment button switch and the Alarm button switch should be connected to ground.
- 16. If the display is powered up before the sender bar is connected, it will read "**no S**" indicating that it is not receiving a signal from the sender bar. If the wiring to the bar is shorted to ground, the display will read "**Shrt**".
- 17. Program the gauge as directed in the programming section. To determine the bottom reading of the gauge, measure from the bottom of the tank to the seam in the middle of the straight vertical part of the float. Make sure the float is resting on the anchor when this measurement is done. Do **NOT** set the gauge to read "0" at the bottom since this will not result in a correct reading when the float is actually floating on the product. In addition, if the gauge ever goes below "0" due to tank expansion, it will read some nonsensical value since this region has not been programmed.
- 18. From the inside, seal all wire entries into the display enclosure with RTV silicon rubber. Make sure that the RTV fully surrounds the wire where it goes though the fitting.
- 19. Close up the display by attaching the front panel. The 806-B will snap on while the 806-Bi cover needs to be screwed on.
- 20. Verify gauge operation by lifting the float.

## 806-B WIRING DIAGRAM-THREE COMPARTMENT WITH ALARM INDICATORS, **ALARM HORN, AND REMOTE SERIAL INTERFACE CONNECTION**



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## 806-B MULTI COMPARTMENT, MULTI DISPLAY WIRING EXAMPLE



IT ALSO SHOWS ALARM 4 FROM ALL DISPLAYS CONNECTED TO A COMMON ALARM HORN. THIS EXAMPLE SHOWS 9 COMPARTMENTS CONNECTED TO 3 OUTSIDE DISPLAYS.

### CHAPTER 7 - DISPLAY PROGRAMMING INSTRUCTIONS

The 806 Annihilator provides a very interactive programming experience. When the programming plug is connected to the gauge, the gauge display will show "**prog**" within a second. Do not start programming the gauge until "**prog**" is shown. When the programming plug is removed, the display will show "**donE**" for a couple of seconds.

### Notes:

- 1. 12 Vdc power must be applied to the gauge display in order to program it.
- 2. The bar must be connected and operating in order to set the bottom reading on the gauge.
- 3. Each compartment must be programmed separately. To program a given compartment, use the **COMPARTMENT** button on the back of the 806-B display to select the compartment to be programmed, as shown on the right hand side of the display. Use the **COMP** button on the front of the 806-Bi display. The programmer must be unplugged from the display when changing compartments.
- To make the 806-B display read in inches, press the INCH button on the back of the display. To make the 806-Bi display read in inches, press the DIM and BRIGHT buttons at the same time.
- 5. There are three compartment terminal blocks but four possible compartment modes. The **COMP** button switches through the four modes, C-1, C-2, C-3 and C-1 with a trailing zero.
- 6. Version 2.03 has 10 possible compartment modes, C-1 through C-9, and C-1 with a trailing zero.

### Program the Annihilator for the number of compartments:

- 1. The display is capable of working with one, two, or three sender bars. It must be programmed for the number of sender bars used, otherwise it will attempt to show unused compartments, or will not show used compartments.
- 2. Version 2.03 must be programmed to reflect both the number of sender bars and the number of displays in the application.
- 3. The 817-USB programmer is not needed for this programming. No programming is possible or required for the sender bars.
- 4. Connect 12 volt power to the display, but do not connect any sender bars. The display should show "**no S**".

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- 5. Press and hold the INCH button (806-B) or the DIM and BRIGHT buttons (806-Bi). After about 5 seconds, the display will enter the "program number of compartments" mode by showing "P no. C1", "P no. C2", "P no. C3", or "PTr0 C1" depending on what is currently programmed (1, 2, 3 compartments, or 1 with trailing zero). Release the button(s) at this point. Version 2.03 will show from "Pno C1" to "Pno C9", or "PTro C1"
- 6. Press the **COMPARTMENT** button to change the right hand number to the correct number of compartments. Do this within 5 seconds or the display will exit the programming mode. For version 2.03, see the following table to select the correct number of compartments for a display.
- 7. When the display shows the correct number of compartments, do not press any button for 5 seconds. The display will then show "Stor C1", "Stor C2", "Stor C3", or "Stor O" indicating that 1, 2, 3 compartments or the trailing zero has been stored. The display will then return to normal operating mode. For version 2.03, the display will show "Stor C1" to "Stor C9" or "Stor O".
- 8. Test the display by repeatedly pressing the **COMPARTMENT** button. The compartment number should go 1-2-3-1-2-3 etc. for a three compartment system, 1-2-1-2 etc for a two compartment system. If only one compartment is used, then the compartment number is not shown or a "0" is shown for the trailing zero mode and the **COMPARTMENT** button has no effect.
- 9. For version 2.03, the compartment number will go 1-2-3-1-2-3 for display 1, 4-5-6-4-5-6 for display 2, or 7-8-9-7-8-9 for display 3. If only one compartment is used and the trailing zero mode is not selected, then the compartment number is not shown on display 1. However, if display 2 is programmed for one compartment, it will show "C4", similarly, if display 3 is programmed for one compartment, it will show "C7".
- 10. The number of compartments can be reprogrammed at any time if required. The display must show "**no S**" on the selected compartment to be able to enter the programming mode.

### 806 Multi Compartment Display Programming and Wiring Guide

Number of compartments	Display 1 programming	Display 1 wiring	Display 2 programming	Display 2 wiring	Display 3 programming	Display 3 wiring
1 with trailing zero	PTr0 C1	Sender bar 1 to COMP 1	Not Applicable	Not Applicable	Not Applicable	Not Applicable
1	P no.C1	Sender bar 1 to COMP 1	Not Applicable	Not Applicable	Not Applicable	Not Applicable
2	P no.C2	Sender bar 1 to COMP 1 Sender bar 2 to COMP 2	Not Applicable	Not Applicable	Not Applicable	Not Applicable
3	P no.C3	Sender bar 1 to COMP 1 Sender bar 2 to COMP 2 Sender bar 3 to COMP 3	Not Applicable	Not Applicable	Not Applicable	Not Applicable
4	P no.C1	Sender bar 1 to COMP 1	P no.C4	Sender bar 4 to COMP 1	Not Applicable	Not Applicable
5	P no.C2	Sender bar 1 to COMP 1 Sender bar 2 to COMP 2	P no.C5	Sender bar 4 to COMP 1 Sender bar 5 to COMP 2	Not Applicable	Not Applicable
6	P no.C3	Sender bar 1 to COMP 1 Sender bar 2 to COMP 2 Sender bar 3 to COMP 3	P no.C6	Sender bar 4 to COMP 1 Sender bar 5 to COMP 2 Sender bar 6 to COMP 3	Not Applicable	Not Applicable
7	P no.C1	Sender bar 1 to COMP 1	P no.C4	Sender bar 4 to COMP 1	P no.C7	Sender bar 7 to COMP 1
8	P no.C2	Sender bar 1 to COMP 1 Sender bar 2 to COMP 2	P no.C5	Sender bar 4 to COMP 1 Sender bar 5 to COMP 2	P no.C8	Sender bar 7 to COMP 1 Sender bar 8 to COMP 2
9	P no.C3	Sender bar 1 to COMP 1 Sender bar 2 to COMP 2 Sender bar 3 to COMP 3	P no.C6	Sender bar 4 to COMP 1 Sender bar 5 to COMP 2 Sender bar 6 to COMP 3	P no.C9	Sender bar 7 to COMP 1 Sender bar 8 to COMP 2 Sender bar 9 to COMP 3

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### Program the Annihilator gauge display into inches:

- 1. Turn on the programmer.
- 2. Make sure the inch mode is correct.
- 3. Select a memory location with **MEM LOC**.
- 4. Press the **INCH MEM (SHIFT 1)** button to put inches into the memory. If the inches are already in memory from a previous calibration, it is not necessary to do it again, but make sure that they are the correct inches (1/4").
- 5. To program the alarm points, determine the level that they should be set at and whether they should be start up or shut down. The start up mode turns the alarm on as the tank level rises past the alarm point (i.e., the alarm is on at the top of the tank, and off at the bottom). The shut down mode turns the alarm off as the tank level rises past the alarm point (i.e., the alarm is on at the bottom of the tank, and off at the top).
- 6. If the automatic alarm is to be used, program Alarm 4 as shut down at the point where the horn is to come on, and program Alarm 3 as shut down a few inches above where the float will sit at the bottom of the tank. The automatic alarm is a special output so that even though Alarm 4 is programmed as shut down, the horn will be turned on when the level rises above the Alarm 4 point, and then will turn off when the alarm is silenced. When the fluid level goes below the Alarm 3 point, the alarm will be re-armed so it will sound the next time the level goes above Alarm 4.
- 7. To set Alarm 1, use the INCHES buttons to obtain the desired set point on the CALIBRATION display, then press the ALARM SHUT DN or SHIFT-ALARM ST UP button followed by the 1 button. When the operation is complete, repeat this procedure for the other alarms, pressing 2, 3, and then 4 after the ALARM button. If an alarm is not used it does not need to be programmed.
- 8. Make sure that the wires from the sender bar are connected to the gauge display, and plug the programmer plug into the gauge display. Press the **BAR** button. The INCHES display should show some inch reading, if it shows "**no S**" or "**No FL**" check the wiring.
- Measure the distance from the bottom of the tank to the middle of the float, this is the bottom reading. Use the OFFSET buttons to obtain this reading on the CALIBRATION display. NOTE: The calibration offset is carried over when memory locations are changed.

- 10. Press the **PROG** button to transfer the calibration to the gauge.
- 11. When the operation is complete, unplug the programmer from the gauge and verify gauge operation.

### Copy one Annihilator gauge display to another:

- 1. Turn on the programmer.
- 2. Make sure the inch mode is correct (1/4").
- 3. Select a memory location with **MEM LOC**.
- Plug the programmer plug into the gauge display to be copied from. Press the COPY button to copy the gauge calibration into memory.
- 5. When the operation is complete, unplug the programmer plug from the first gauge and plug it into the gauge display to be copied to. Press the **PROG** button to transfer the calibration to the second gauge.
- 6. When the operation is complete, unplug the programmer from the gauge and verify gauge operation.

### Program an Annihilator gauge display from a table of calibration values:

- 1. Obtain a table of inches versus volume
- 2. Turn on the programmer.
- 3. Make sure the inch mode is correct (1/4").
- 4. Select a memory location with **MEM LOC**.
- Press the CLEAR MEM button to erase any previous calibration.
- 6. Starting at the 0 inch value of volume calibration, use the 0 to 9, decimal, E, F, L, U, or BL buttons on the keypad to enter the calibration. Press the ENTER button to store the value in memory. When ENTER is pressed, the inches will go to the next value. If you make a mistake, use the BACK button to erase the entry, or if ENTER has already been pressed, use INCHES ↓ to go back to that inch value and re-enter the correct value. If more than 4 numbers are entered the previous ones will scroll off the left of the display. If ENTER is pressed before any numbers, nothing will happen.
- 7. After the table has been entered, use the **INCHES** buttons to review the table to make sure it is correct. If a calibration value is incorrect, simply re-enter it and press **ENTER**.

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8. Continue with the same procedure as in Program the gauge display into inches from step 5. When setting the bottom reading, use the calibration table to look up the volume corresponding to the distance to the middle of the float. Use the **OFFSET** buttons to obtain this reading on the CALIBRATION display.

### Program an Annihilator gauge display from a table stored in memory:

- 1. Turn on the programmer.
- 2. Make sure the inch mode is correct (1/4").
- 3. Select the desired memory location with **MEM LOC**.
- 4. Continue with the same procedure as in **Program the gauge display into inches** from step 5. When setting the bottom reading, use the calibration table to look up the volume corresponding to the distance to the middle of the float. Use the **OFFSET** buttons to obtain this reading on the CALIBRATION display.

### Programming the alarms to use the automatic self resetting alarm for high level warning:

- To use this alarm, the warning device (light or horn) must be connected to Alarm 4.
- 2. Turn on the programmer. Make sure you have the correct volume calibration showing in the Calibration Display.
- 3. 3. For this application, alarm 4 is the warning point and alarm 3 is the tank empty point. Alarm 4 must be higher than alarm 3. Both of the alarms are programmed as shutdown. Note that even though Alarm 4 is programmed as shut down, the alarm will turn on as the tank level rises past the alarm set point.
- Select the point in the tank where the warning should turn on.
   Use the **INCHES** buttons to obtain the desired set point on
   the CALIBRATION display.
- 5. Then press the **ALARM SHUT DN** button followed by the 4 button. This programs alarm **4** as a shutdown with the warning value.
- 6. Select a point in the tank which is a few inches off the bottom. The product level must go below this point when unloading, but once the tank has been even partially filled the product level should be above this point. Use the **INCHS** buttons to obtain this point on the Calibration Display.

- 7. Then press the **ALARM SHUT DN** button followed by the 3 button. This programs alarm 3 as a shutdown with the tank empty value. When the product level drops below this point the warning bypass is reset.
- 8. This completes the alarm programming. Alarms 1 and 2 are not used for the automatic self resetting alarm for high level warning. Program the gauge according to the appropriate instructions above.

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### CHAPTER 8 - TROUBLESHOOTING GUIDE

There are only 4 serviceable components in the gauge: the float, the sender bar, the interconnecting wire, and the display.

If the float is sunk, the display will read the bottom tank reading all the time. If the float is partially sunk, the reading may rise and then fall as the tank is filled. If the float is lost from the bar, or if the float magnets are all damaged or lost, the bar will output a 0.0 inch signal which will be displayed as "**FLot**" indicating that the float is missing or not working.

If the wires are cut or the sender bar is dead, the display will read "**no S**" indicating that it is not receiving a signal from the sender bar. If the wiring to the sender bar is shorted to ground, it will show "**Shrt**". In rare cases a shorted sender bar could cause a short circuit reading, disconnecting the yellow wire at the sender bar will change the display reading to "**no S**" in this case.

If the display reads erratically, check for water inside the display, and for a poor end cap seal. If the display is receiving a corrupted or inadequate signal it will show "Err" indicating an error in the bar signal.

If the display shows "**Prob**" at all times, it indicates an internal memory corruption of the number of compartments. Try reprogramming the number of compartments, if this fixes the problem then no further action is needed. If not, then the display will need to be serviced.

### To test a sender bar:

- 1. Connect the bar to a display that is known to be operational. Program the display to inches, or hold down the inch button on the back of the display.
- By running a float up and down the bar you should see the inch numbers on the display rise and fall. If it shows "no S" or "Err" or "Shrt" the bar needs to be replaced.

### To test a display:

1. Connect the display to a bar that is known to be good. Run the float up and down on the bar to see if the display responds properly.

- 2. If the display shows some strange reading it may need reprogramming. Copy the existing programming into an unused memory on the 817-USB (just in case) and then program the display in inches or a known good program. The display should show "prog" within a second of plugging in the 817 plug, if not it is bad. After the 817 plug is removed the display readings should match the readings on the 817 calibration display, if they do not then the display is bad.
- 3. If only the alarms do not work then copy the calibration into the 817-USB to check if the alarms are programmed. If they are programmed then connect the sender bar to the display. Connect the positive lead of an ohm meter to the alarm terminal, and the negative lead of the ohm meter to the ground terminal. Run the float up and down on the bar to test the alarms.

The software version can be displayed on an 806-B by pressing both the **INCH** button and **COMPARTMENT** button for 5 seconds when "**No S**" is shown. The software version can also be displayed on an 806-Bi by pressing the **DIM** button, **BRIGHT** button and **COMPARTMENT** button for 5 seconds when "**No S**" is displayed. The code revision number will be displayed until the buttons are released, for example "**Cod2.02**" or "**Cod 2.03**".

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### **CHAPTER 9 - SPECIFICATIONS**

Resolution:	6 mm (1/4")			
Accuracy:	+/- 0.5 cm (+/- 0.2")			
Temperature range:	-40°C to +90°C (-40°F to +194°F) product (sender bar)			
	-40°C to +60°C (-40°F to +140°F) ambient (display)			
Alarm output max rating:	1-amp at 15 Vdc			
Input power:	10-15 Vdc, 180 mA max. (minimum 1-amp fuse)			
Sender bar:	Update (sample) rate: 56 mS (milliseconds)			
	Material: 304 stainless steel tube, 25 mm (1") diameter, 316 seamless stainless steel (optional upgrade).			
	Length: Fits any size tank up to 221 cm (87") in height.			
	Fitting: 25 mm (1") NPT male compression fitting.			
Float:	Material: Medium density polyethylene.  Stainless steel float available (optional upgrade).			
	Size: Cylindrical, 178 mm (7") in diameter, 114 mm (41/2") high.			
	Buoyancy: Sinks 25 mm (1") in water.			
806-B display:	Material: Enclosure is PBT plastic, lid is polycarbonate.			
	Enclosure size: 152 mm (6") in diameter x 70 mm (23/4") deep.			
806-Bi display:	Enclosure material: ABS plastic.			
	Enclosure size: 127 x 64 mm (5"x 21/2") x 43 mm (1 2/3") deep.			
	Display Type: 0.56" red LED, 4 volume digit, 2 compartment digits.			
	External Power: Powered by 12 Vdc truck power.			

### **CHAPTER 10 - SERVICE AND WARRANTY INFORMATION**

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

### **DISCLAIMER OF WARRANTY ON HARDWARE**

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, 286 Kaska Road, Sherwood Park, Alberta, 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:

### CANADA

Garnet Instruments Ltd. 286 Kaska Road Sherwood Park, AB T8A 4G7 CANADA

email: info@garnetinstruments.com

### **UNITED STATES**

Garnet US Inc. 5360 Granbury Road Granbury, TX 76049

USA

email: infous@garnetinstruments.com

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# TO MAXIMIZE YOUR WARRANTY PLEASE REGISTER ONLINE AT www.garnetinstruments.com OR MAIL THIS FORM IN TO GARNET.

### GARNET

### **LIMITED WARRANTY REGISTRATION**

AODEL NO.	SERIAL NO.	SENDER BAR SERIAL NO	AL NO(if applicable)
ATE PURCHASED	DATE INSTALLED	IMPORTANT:	WITHOUT THE SERIAL NUMBER OF EACH UNIT IT IS DIFFICULT TO DETERMINE WARRANTY VALIDITY
YR/MO/DAY	YR/MO/DAY		
COMPANY NAME		DEALERS NAME_	
RINCIPAL CONTACT		WARRANTY CONTACT_	ACT
NDDRESS		ADDRESS	
ELEPHONE	FAX	TELEPHONE	FAX
N CANADA RETURN TO:		IN UNITED STATES RETURN TO:	BETURN TO:

Garnet Instruments Ltd. 286 Kaska Road

Sherwood Park, AB T8A 4G7 CANADA

Garnet US Inc.

5360 Old Granbury Road

Granbury, TX 76049

IMPORTANT: RETURNING THIS CARD WILL ENABLE US TO NOTIFY YOU IN THE EVENT OF A PRODUCT RECALL OR TO SUPPLY YOU WITH REQUIRED PRODUCT SAFETY INFORMATION.

■●■ Printed in Canada

 CANADA
 P: 780-467-1010

 286 Kaska Road
 F: 780-467-1567

 Sherwood Park, AB T8A 4G7
 TF: 1-800-617-7384

Garnet US Inc. P: 817-578-8601 5360 Old Granbury Road F: 817-573-0005 Granbury, TX 76049 F: 1-877-668-7813

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