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Level Measurement

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Installation and Operating Instructions

Series 506-6900
using 406-6000 Electronics
for
Water Dump on Oil/Water Separators

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1-800-553-9092 US and Canada
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SECTION 1 - INTRODUCTION

The instructions in this manual are for the Dumpstar 506-6900-XXXX single point interface control for use in oil/water separation.

1.1 Dumpstar Description

The Drexelbrook 506-6900 point level controls include a 700 Series retractable sensing element and integral 406-6000 electronics for easy installation.

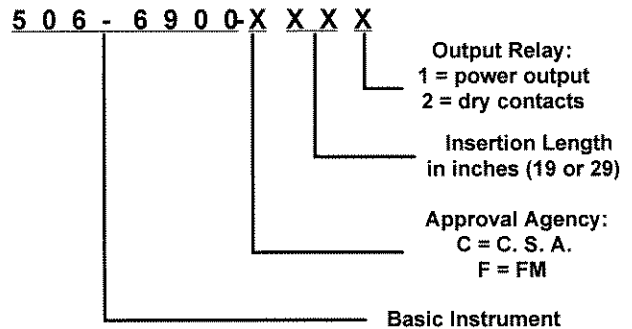
The 406-6000 electronic unit is a precision, RF (radio frequency), relay output instrument. It provides double-pole double-throw relay contact closure when the interface being measured reaches the sensing element in the separator. The relay contacts may be used to operate alarms, solenoid valves, or other low power devices. An alternate "dry contact" relay is available for low current use with programmable controllers (PLC's) and computers.

The Dumpstar Control features Cote-Shield™ design which enables the instrument to ignore the effects of build-up or coating of material on the sensing element when properly installed and applied.

The sensor portion (or probe) provides a change of RF impedance, indicating presence of water (conducting) or oil (insulating).

The Dumpstar control will sense the interface between oil and water only at the point where it is installed. The probe must be physically relocated to raise or lower the sensing/control point. Whether vertical, horizontal, or angle-mounted, the water level is sensed at the tip of the probe.

1.2 Model Numbering



INTRODUCTION

1.2.1 Models Available

A. 506-6900-X19X

(See Figure 1-1). The clearance that is required to install and withdraw is 42 inches from the face of the block valve.

Insertion Length (IL): 19 inches less the length of the block valve and nipple.

Inactive Section: 15 inches less the length of the block valve and nipple.

B. 506-6900-X29X (See Figure 1-2). The clearance that is required to install and with draw is 52 inches from the face of the block valve.

Insertion Length (IL): 29 inches less the length of the block valve and nipple.

Inactive Section: 25 inches less the length of the block valve and nipple.

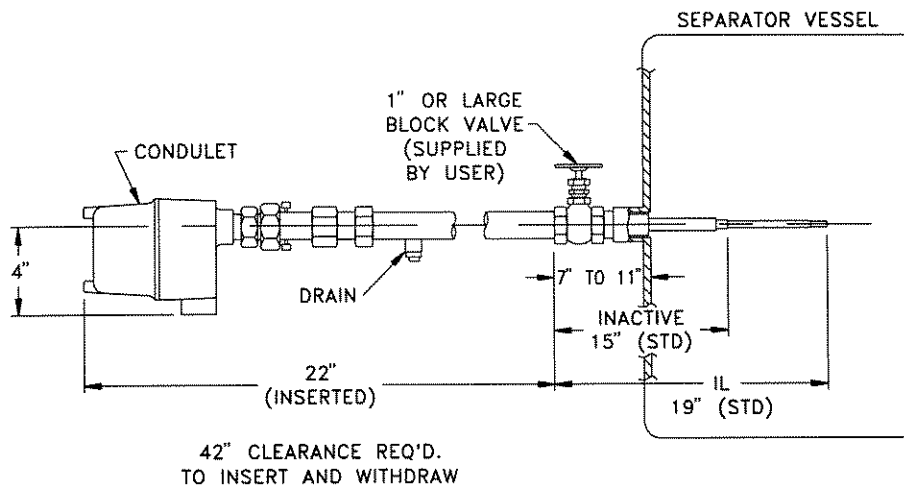


Figure 1-1
506-6900-X19X
Point Level Control

SPECIFICATIONS

1.3 Specifications

- A. Power requirement: 95-130 Vac, 50/60 Hz, 1 watt
- B. Level Output: DPDT relay
- C. Time delay: Field adjustable 0-90 seconds
- D. Contact rating:
 - Type 1-5A Non-inductive, 3A inductive (28 Vdc or 120 Vac).
 - Type 2 - 1A Non-inductive (28 Vdc).
- E. Operating temperature:
 - Ambient: -40° to 140°F,
 - Process: 0-300°F
- F. Temperature Effect: 1/2"/100°F
- G. Sensitivity: 0.1"
- H. Process Pressure Rating: 150 PSIG (50 PSI maximum insertion or removal).
- I. RFI protection (Built-in):
Less than 0.1" shift in operating point from 5W field @ 27, 150, or 450 Mhz at a distance of 5 feet from exposed output cable or power line.
- J. Fail-Safe: Low-Level Fail-Safe (LLFS).
If power is lost, relay moves to "oil" position.
- K. Sensing Element Material of Construction: 316 SS and TFE insulation.
- L. Mounting Dimensions: 1" NPT. Maximum valve & nipple length is 11". (See Figure 2-1).
- M. Minimum valve I.D.: 7/8"
- N. Standard Housing meets the following classifications:
 - Nema 1 General Purpose
 - Nema 2 Drip tight
 - Nema 3 Weatherproof
 - Nema 4 Waterproof
 - Nema 5 Dust Tight
 - Nema 12 Industrial Use
- Explosionproof for:
 - Class I, Groups A, B, C, D, Div. 1 or 2, Class II, Groups E, F, G Div. 1 or 2.
- O. Options: Drexelcote™ corrosion-resistant housing.
- P. Approvals: C.S.A. or Factory Mutual (specify).

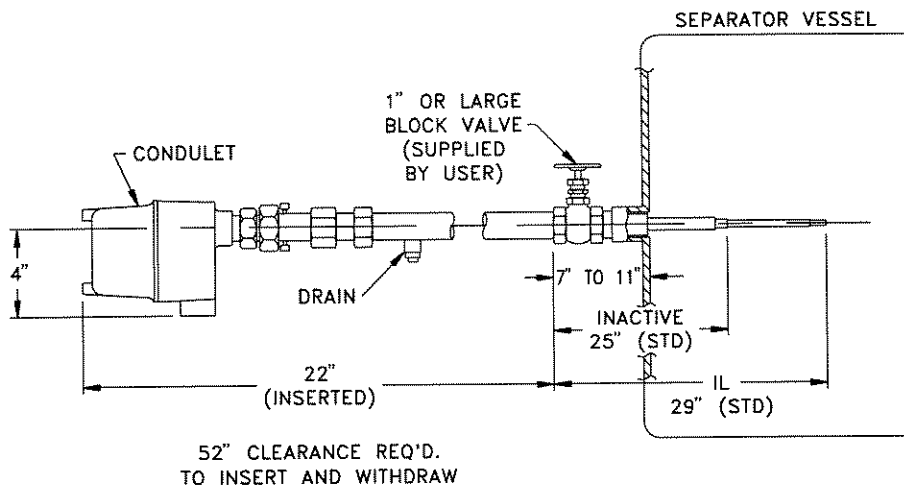


Figure 1-2
506-6900-X29X Point Level Control

INSTALLATION

SECTION 2 - INSTALLATION

2.1 Unpacking

Carefully remove the contents of the shipping carton and check each item against the packing slips before destroying any packing materials. If there is any shortage or damage, report it immediately to the factory.

2.2 Mounting

The Dumpstar 506-6900 Series water dump control was designed for field mounting, but it should not be mounted in a location which features vibration, corrosive atmospheres, or any possibility of mechanical damage.

The actual mounting location depends on the placement of nozzles or openings in the vessel, and the level at which the oil/water interface is to be maintained. **Do Not** mount the sensing element through a valve and nozzle longer than 11 inches. To install the retractable Dumpstar control through a 1 inch block valve, follow the steps below. (See Figure 2-1).

- A. Back out the retention screws.
 - B. Loosen the packing nut at the slider gland so that the sensing element will slide out easily, and retract the sensing element until the blowout stop is reached.
- Note:** Do not touch either hex nut on the primary seal.
- C. Thread the sensing element into the block valve. (Minimum valve I.D. is 7/8").
 - D. Tighten the packing nut into the slider gland just enough so that the sensing element will still slide, but tight enough to prevent product leakage from the gland.
 - E. Do not stand directly behind the probe. Crack the block valve. If product leakage is observed, tighten packing nut slightly.
 - F. Insert the sensing element into the vessel, making sure that the retaining groove slides into the packing nut.

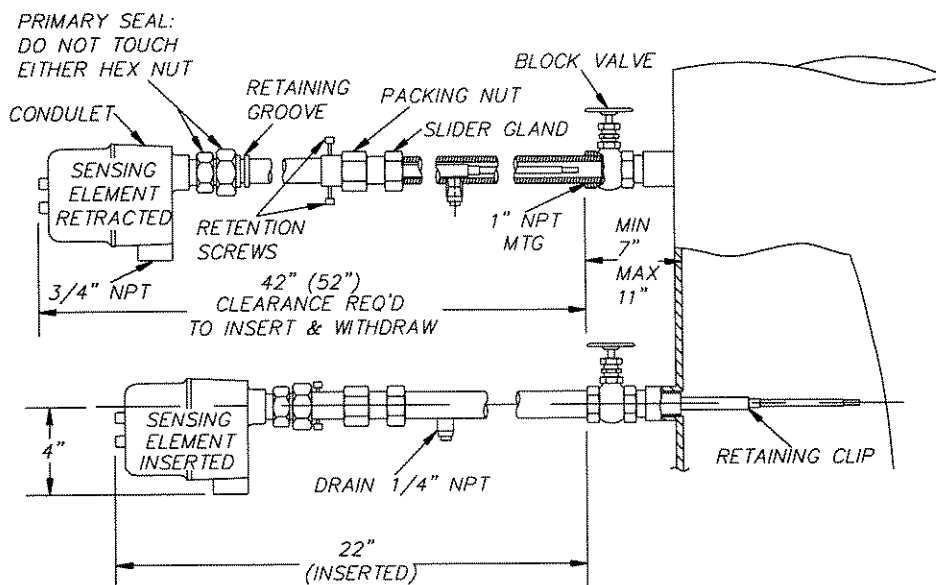


Figure 2-1
Mounting the Unit

- G. Tighten the retention screws snugly into the retaining groove.
- H. Finally tighten the packing nut again to prevent any leakage.

Installation is complete.

To retract the sensing element, follow the steps below:

Note: Before removing the level control, disconnect the connections to the input and relay terminal. Do not loosen primary seal.

- A. Standing clear of the instrument, back out the retention screws.
- B. Loosen the packing nut at the slider gland cautiously.

Caution: It is possible that vessel pressure can push the instrument out to the blowout stop.

- C. Withdraw the sensing element until contact is felt with the blowout stop.

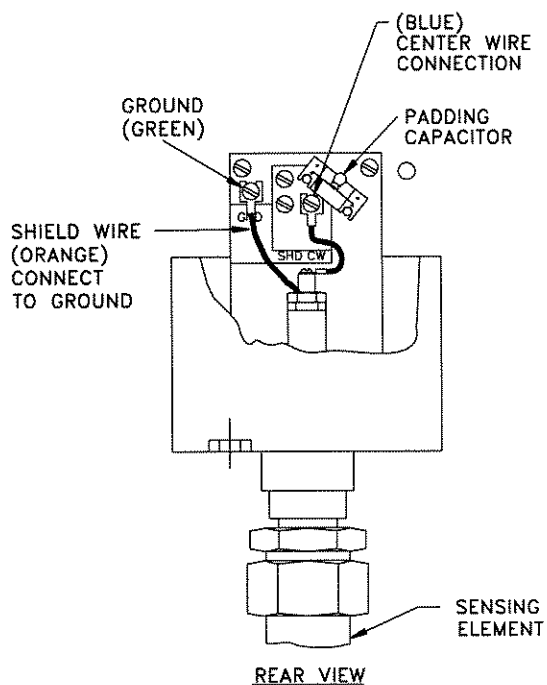


Figure 2-2
Sensing Element Wiring

506-6900-LM/p. 5

- D. Close the block valve.

Caution: Flammable liquid can escape at this point. Do not perform this procedure near open flame or any ignition source.

- F. Back control out of the block valve threads and withdraw the unit.

2.3 Wiring

2.3.1 Sensing Element Wiring

The sensing element connections to the integral electronics have been factory-wired. However, if it is necessary to check these connections, see Figure 2-2. All of the sensing element connections are made on the back of the electronic unit.

2.3.2 Power Wiring

All power connections are made to the terminal strips on the front of the electronic chassis. See Figure 2-3. Due to the low power consumption of the instrument (1 watt), the wiring need only follow local electrical codes. It is important to keep the power wiring separate from the sensing element connections in order to maintain the intrinsic safety of the sensing element.

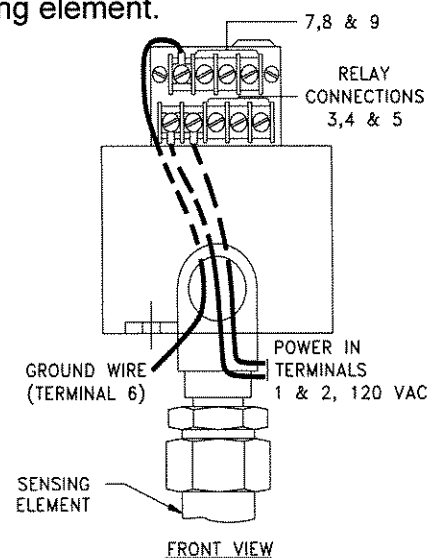


Figure 2-3
Power and Relay Wiring

OPERATION

2.3.3 Relay Wiring

The relays used in this control have double-pole double-throw contact closure. All relay connections are made to the terminal strips on the front of the electronic chassis. See Figure 2-3. The relay serves as a low power switch and does not provide power to activate motors or other heavy equipment (for non-inductive loads, see contact ratings in Section 1.2). Contact closures for Dumpstar are shown in Figure 2-4.

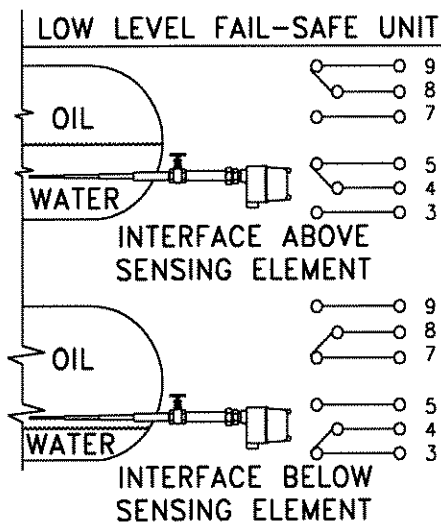


Figure 2-4
Relay Contact Chart for Dumpstar

SECTION 3 - OPERATION

This section contains the operation information for the 506-6900 point level control.

3.1 Start-up

Before applying power to the instrument, ensure that the output and power wiring is correct. See Section 2.3.2 and 2.3.3.

WARNING: Units in Hazardous Areas:

Before the explosionproof housing cover is removed to examine the instrument, the area must be checked and known to be non-hazardous. Replace the cover when finished checking the instrument.

The wiring connection from the explosionproof case must be equipped with an approved seal fitting.

3.2 Controls

Note: The 506-6900 Dumpstar control is factory calibrated for oil/water interface applications. The level at which the Dumpstar switches on/off is not adjustable. Note that the LED indicates relay energized, or "water" (not alarm).

3.2.1 Time Delay Adjustment

A 0-90 second time delay adjustment is a standard accessory with a Dumpstar control. The time delay adjustment is located on top of the instrument. Use a small screwdriver to adjust the time delay. See Figure 3-1. Time delay is used to help stop a "chattering" relay output due to waves in the interface.

The time delay causes the output to indicate low level as long as waves (H₂O) continue to contact the sensing element. With a long time delay, the unit will stop indicating low level only after the bottom of the waves are completely above the sensing element. There is no delay on falling level.

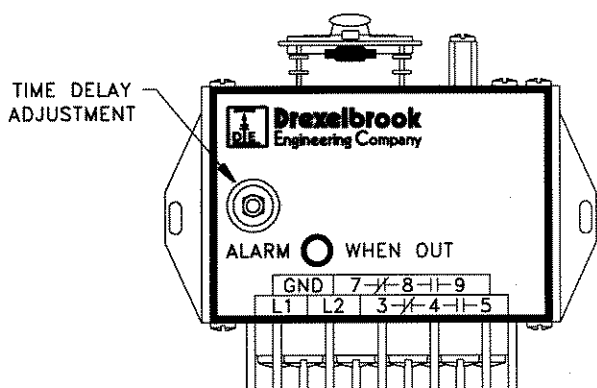


Figure 3-1
Time Delay Adjustment

3.3 Operating Notes

The Dumpstar is shipped from the factory with a calibration that is sufficient for 90% of all oil/water interface applications. Its performance is optimal in highly conductive brines which produce emulsions that are slightly conductive.

It is possible that some produced waters or condensate in storage tanks have such low conductivity, that they appear to be emulsions and the output will correspond to "oil" at all times. In other cases, where the oil forms a thick, uniformly-insulating coating that the water phase cannot wash off, it is possible that the resistance probe-to-ground will be too high to signal "water".

In either case, a "padding capacitor" should be cut out to allow the Dumpstar to operate at higher resistance levels. See Figure 3-2.

Caution: When removing a padding capacitor, use care not to damage the "index capacitor" that is attached to the same terminals.

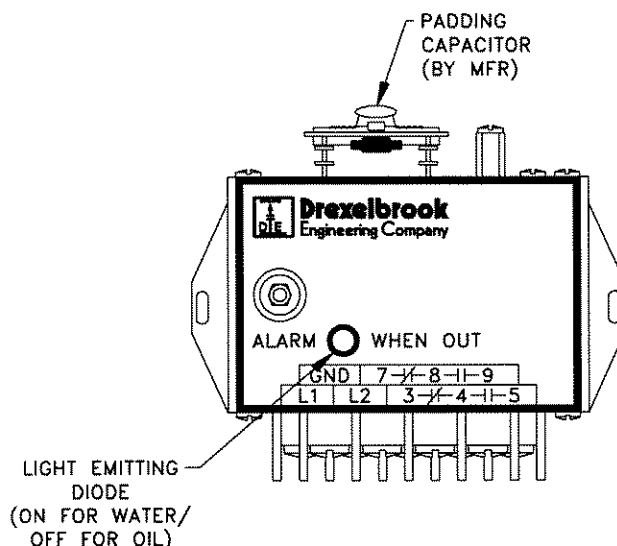


Figure 3-2
Location of Padding Capacitor

TROUBLESHOOTING

SECTION 4 - TROUBLESHOOTING

4.1 Introduction

The Dumpstar level controls are designed to give years of unattended service. No periodic or scheduled maintenance is required. There are no specific recommended spare parts to be stocked by the user. However, it is best to keep a spare electronic unit on hand in the event of a component failure. Defective chassis should be returned to the factory for repair.

The following troubleshooting procedures should be followed in checking out your level control. If attempts to locate the difficulty fail, notify your local Drexelbrook representative, or call the factory direct and ask for the service department.

Before removing the instrument from service, determine whether the malfunction is due to a problem with the probe or the process conditions.

4.2 Testing the Unit

4.2.1 Gross Function Test - All Units

A. If output indicates "oil" (low level - LED dark), short the probe to ground by placing a

wire between the screw in the center of the probe rod and ground. The instrument should reverse output.

B. If output indicates "water" (high level - LED bright), remove the wire, shown in Figure 4-1, from the center of the probe rod. Instrument should reverse output.

If the gross function test in step A or B is successful, investigate the probe further before pulling probe. Proceed with paragraph 4.2.2.

4.2.2 Resistance Check - All Units with Padding Capacitor

Remove the wire from the center of the probe rod (Figure 4-1) and connect a variable resistor between the loose end of the wire and ground. Reduce the resistance to $200\ \Omega$. The instrument should give a "water" indication (high level - LED bright).

Next, increase the resistance value to $600\ \Omega$. The instrument should indicate "oil" (low level - LED dark).

If this test is successful, the instrument is functioning properly and it is necessary to check the process conditions (paragraph 4.2.3). If the instrument failed, proceed to paragraph 4.3.

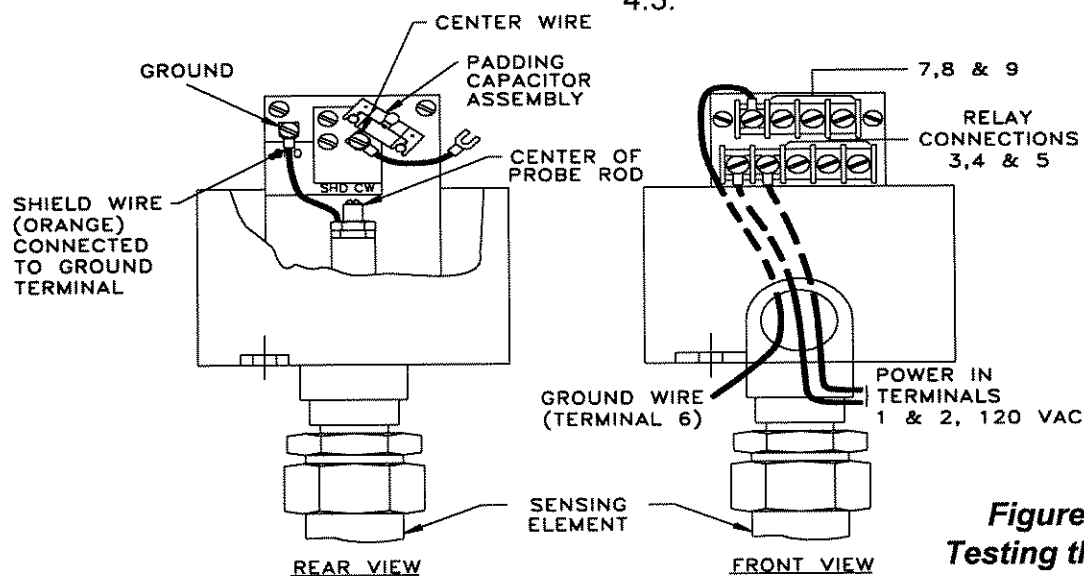


Figure 4-1
Testing the Unit

4.2.3 Resistance Check of In-Separator Liquids

Disconnect wire from the center of probe rod, connect an analog ohmmeter from center of probe rod to ground.

- A. If probe is in oil phase (check at probe drain tap) resistance reading must be greater than 500 Ω .
- B. With probe in water phase, resistance reading must be less than 250 Ω .

If conditions **A** and **B** are both met, and instrument switches at resistance specified in paragraph 4.2.2, the instrument must be performing properly. If incorrect indications have been documented, it is necessary to repeat steps 4.2.3A and 4.2.3B when the incorrect indication is actually occurring. Consult your Drexelbrook sales engineer if application produces more conductive oil. If water is not conductive enough at all times, remove padding capacitor (paragraph 3.3) and perform test per paragraph 4.2.4.

4.2.4 Resistance Check with Padding Capacitor Removed

If padding capacitor has been removed, disconnect wire at center of probe rod. Instrument should indicate "oil" (low level LED dark). Touch the loose end of the wire with finger. Instrument should indicate "water" (high level - LED bright). The in-separator liquid checks (paragraph 4.2.3) should produce "water" phase of 2500 or less, and "oil" phase of 20,000 or greater.

4.3 Testing the Relay Circuits

- A. The relay circuit consists of two sets of single-pole, double-throw relay contacts brought out to a terminal strip. When the instrument is functioning properly, one contact from each set will be open and the other contact in each set will be closed. Both sets will reverse when the level condition changes.
- B. Relay operation may generally be heard as an audible click when the background noise is not too high. Use the method shown in Figure 4-2 to determine if the relay contacts are switching.



Figure 4-2
Testing the Relay Circuits

- C. Often, a malfunctioning unit can be traced to improper wiring of the relay terminals to an annunciator or other panel device. Check the wiring against the relay chart in Figure 4-3.

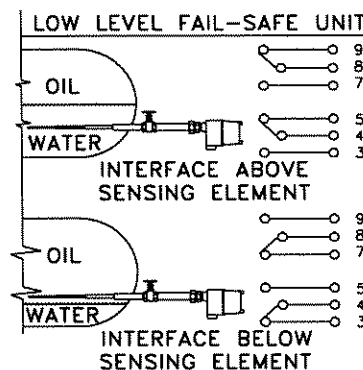


Figure 4-3
Relay Contact Chart

TROUBLESHOOTING

4.4 Testing the Cote-Shield Sensing Element (Out of Separator)

A. See Figure 4-4. Disconnect the center wire (CW) and ground (GND) wire from the electronic unit.

B. With an analog (non-digital) ohmmeter, measure the resistance between the sensing element terminals for the following values:

Resistance, center wire of probe to shield wire _____

C. With the sensing element in air and no coating, the resistance value should be 1 megohm or greater. If the reading is not above 1 megohm, consult the factory

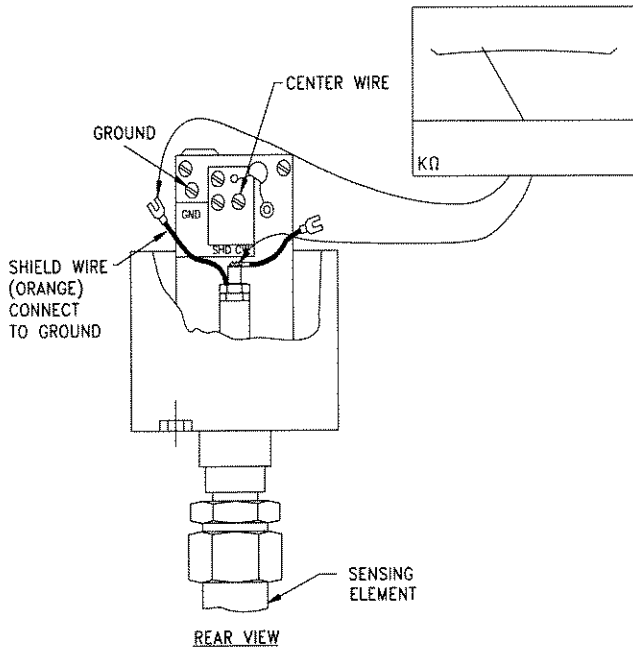


Figure 4-4
Testing the Sensing Element

SECTION 5 - FACTORY AND FIELD SERVICE

5.1 Telephone Assistance

If you are having difficulty with your Drexelbrook equipment, and attempts to solve the problem have failed, notify your local Drexelbrook representative, or call the factory direct and ask for the Service Department. Drexelbrook Engineering Company is located at 205 Keith Valley Road, Horsham, PA 19044. Service Department phone # is 1-800-527-6297. The factory telephone number is (215) 674-1234. To help us solve your problem quickly, please have as much of the following information as possible when you call:

Instrument Model: Dumpstar 506-6900
P.O. # and Date: _____
Application: _____
Temperature: _____
Pressure: _____
Agitation: _____
Brief description of the problem: _____

Checkout procedures that failed: _____

5.2 Equipment Return

Do not return equipment without first contacting the factory for a return authorization number. Any equipment being returned must include the following information:

Reason for return _____
Authorization # _____
Person to contact at your company _____

"Ship To" address _____

If available, please include the original P.O. # and the original Drexelbrook # also. To keep the paperwork in order, you must include a purchase order with returned equipment, even though it may be coming back for warranty repair. You will not be charged if the equipment is covered under warranty. Please return your equipment with freight charges prepaid. We regret that we cannot accept collect shipments.

Drexelbrook frequently has exchange units available for quicker turn around of repair units. If you prefer your own unit to an exchange unit, please mark clearly on the return unit, "Do Not Exchange".

5.3 Field Service

Trained field service people are available on a time-plus-expense basis to assist in start-ups, diagnosing difficult application problems, or in-plant training of personnel. Contact the Service Department for further details.

5.4 Customer Training

Periodically, Drexelbrook instrument training seminars for customers are held at the factory. These sessions are guided by Drexelbrook engineers and specialists, and provide detailed information on all aspects of level measurement, including theory and practice of instrument operation. For more information about these valuable workshops, write to Drexelbrook Engineering, attn: Communications/Training Group, or call direct (215) 674-1234.

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QUOTATIONS: Written quotations are valid for thirty (30) days unless otherwise stated. Verbal quotations expire the same day they are made.

PRICES: All prices and terms are subject to change without notice. Buyer-requested changes to its order ("Orders"), including those affecting the identity, scope and delivery of the goods or services, must be documented in writing and are subject to Seller's prior approval and adjustments in price, schedule and other affected terms and conditions. Orders requiring certified test data in excess of commercial requirements, are subject to a special charge.

ORDER ACCEPTANCE: All Orders are subject to final approval and acceptance by Seller at its office located at 205 Keith Valley Road, Horsham, Pennsylvania 19044.

TERMS OF PAYMENT: Seller's standard terms of payment for Buyers who qualify for credit are net thirty (30) days from date of invoice. All invoices must be paid in United States dollars.

CREDIT: Seller reserves the right at any time to revoke any credit extended to Buyer or otherwise modify terms of payment if Buyer fails to pay for any shipments when due or if in Seller's opinion there is a material adverse change in Buyer's financial condition. Seller may, at its option, cancel any accepted Order if Buyer fails to pay any invoices when due.

DELIVERY: Shipments are F.O.B place of manufacture ("Shipping Point") and the Buyer shall pay all freight, transportation, shipping, duties, fees, handling, insurance, storage, demurrage, or similar charges from Shipping Point. Delivery of goods to common carrier shall constitute delivery and passing of title to the Buyer, and all risk of loss or damage in transit shall be borne by Buyer. Any claims or losses for damage or destruction after such delivery shall be the responsibility of Buyer.

Seller reserves the right to make delivery in installments which shall be separately invoiced and paid for when due, without regard to subsequent deliveries. Delay in delivery of any installment shall not relieve Buyer of its obligation to accept remaining deliveries.

Acknowledged shipping dates are approximate only and based on prompt receipt of all necessary information from Buyer and Buyer's compliance with terms of payment.

TAXES: All sales, excise and similar taxes which Seller may be required to pay or collect with respect to the goods and/or services covered by any Order, shall be for the account of the Buyer except as otherwise provided by law or unless specifically stated otherwise by Seller in writing.

TERMINATION AND HOLD ORDERS: No Order may be terminated by Buyer except upon written request by Buyer and approval by Seller, and if said request is approved by Seller, under the following conditions: (1) Buyer agrees to accept delivery of all of the units completed by Seller through the workday on which Seller receives the written termination request; (2) Buyer agrees to pay to Seller all direct costs and expenses applicable to the portion of the Order that is incomplete.

WARRANTY:

A. **Hardware:** Seller warrants its goods against defects in materials and workmanship under normal use and service for one (1) year from the date of invoice.

B. **Software and Firmware:** Unless otherwise specified, Seller warrants for a period of one (1) year from date of invoice that standard software or firmware, when used with Seller specified hardware, shall perform in accordance with Seller's published specifications. Seller makes no representation or warranty, expressed or implied, that the operation of the software or firmware shall be uninterrupted or error-free, or that functions contained therein shall meet or satisfy the Buyer's intended use or requirements.

C. **Services:** Seller warrants that services, including engineering and custom application, whether provided on a fixed cost or time and material basis, shall be performed in accordance with generally accepted industry practices.

D. **Remedies:** Seller's liability under this section is restricted to replacing, repairing, or issuing credit (at Seller's option) for any returned goods and only under the following conditions: (1) Seller must be promptly notified, in writing, as soon as possible after the defects have been noted by the Buyer, but not later than (1) year from date of invoice from Seller; (2) The defective goods are to be returned to the place of manufacture, shipping charges prepaid by the Buyer; (3) Seller's inspection shall disclose to its satisfaction that the goods were defective in materials or workmanship at the time of shipment; (4) Any warranty service (consisting of time, travel and expenses related to such services) performed other than at Seller's factory, shall be at Buyer's expense.

E. **Repaired/Reconditioned Goods:** As to out-of-warranty goods which Seller has repaired or reconditioned, Seller warrants for a period of sixty (60) days from date of its invoice only new components replaced in the most recent repair/reconditioning.

F. **Returns and Adjustments:** No goods may be returned unless authorized in advance by Seller and then only upon such conditions to which Seller may agree. Buyer must obtain an RMA (Return Material Authorization) number from Seller prior to any return shipment and such RMA number must appear on the shipping label and packing slip. Buyer shall be responsible for the returned goods until such time as Seller receives the same at its plant and for all charges for packing, inspection, shipping, transportation, or insurance associated with returned goods. In the event that credit for returned goods is granted, it shall be at the lesser of the then current prices or the original purchase price. Claims for shortage or incorrect material must be made within five (5) days after receipt of shipment.

ALL OTHER WARRANTIES, FOR ANY OF SELLER'S GOODS OR SERVICES, WHETHER ORAL, WRITTEN, EXPRESS, IMPLIED, STATUTORY OR OTHERWISE, INCLUDING WITHOUT LIMITATION ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR PURPOSE ARE EXCLUDED.

INTELLECTUAL PROPERTY: Seller's sale of goods or provision of related documentation or other materials to Buyer shall not transfer any intellectual property rights to Buyer unless Seller specifically agrees to do so in writing. Seller shall retain ownership of all applicable patents, trademarks, copyrights and other intellectual property rights. Buyer shall not use, copy or transfer any such items in violation of Seller's intellectual property rights or applicable law, or for any purposes other than that for which the items were furnished.

Seller shall defend any lawsuit brought against the Buyer based on a claim that the design or construction of the goods sold hereunder by Seller infringe any United States or Canadian Patent, Copyright or Mask Work Registration, provided that Buyer promptly notifies Seller of such claim in writing and further provided that, at Seller's expense, (1) Buyer gives Seller the sole right to defend or control the defense of the suit or proceeding, including settlement, and (2) Buyer provides all necessary information and assistance for that defense. In the event of a charge of infringement, Seller's obligation under the agreement shall be fulfilled if Seller, at its option and expense, either (i) settles such claim; (ii) procures for Buyer the right to continue using such goods; (iii) replaces or modifies goods to avoid infringement; or (iv) accepts the return of any infringing goods and refunds their purchase price; or (v) defends against such claim.

If Buyer furnishes specifications or designs to Seller, the obligations of Seller set forth above shall not apply to goods made by Seller using such specifications or designs, and Buyer shall defend, indemnify and hold Seller harmless against any third party claims for infringement which arise out of Seller's use of specifications or designs furnished by Buyer.

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PACKAGING/WEIGHTS AND DIMENSIONS: Buyer specified packing or marking may be subject to additional charges not otherwise included in the price of the goods. Published weights and dimensions are estimates or approximate only and are not warranted.

FORCE MAJEURE: Seller shall not be responsible for delays in delivery or any failure to deliver due to causes beyond Seller's control, including but not limited to the following items: acts of God, war, terrorism, mobilization, civil commotion, riots, embargoes, domestic or foreign governmental regulations or orders, governmental priorities, port congestion, acts of the Buyer, its agents or employees, fires, floods, strikes, lockouts and other labor difficulties, shortages of or inability to obtain shipping space or transportation, inability to secure fuel, supplies or power at current prices or on account of shortages thereof, or due to limitations imposed by the extent of availability of Seller's normal manufacturing facilities.

If a delay excused per the above extends for more than ninety (90) days and the parties have not agreed upon a revised basis for continuing providing the goods or services at the end of the delay, including adjustment of the price, then Buyer, upon thirty (30) days' prior written notice to Seller may terminate the Order with respect to the unexecuted portion of the goods or services, whereupon Buyer shall promptly pay Seller its reasonable termination charges upon submission of Seller's invoices thereof.

LIMITATION OF LIABILITY: Seller's liability for any claim of any kind, except infringement of intellectual property rights, shall not exceed the purchase price of any goods or services which give rise to the claim. **SELLER SHALL IN NO EVENT BE LIABLE FOR BUYER'S MANUFACTURING COSTS, LOST PROFITS, LOSS OF USE OF THE GOODS OR SERVICES, COST OF CAPITAL, COST OF SUBSTITUTE GOODS, FACILITIES, SERVICES OR REPLACEMENT POWER, DOWNTIME COSTS, CLAIMS OF BUYER'S CUSTOMERS FOR DAMAGES, OR OTHER SPECIAL, PROXIMATE, INCIDENTAL, INDIRECT, EXEMPLARY OR CONSEQUENTIAL DAMAGES.** Any action against Seller must be brought within eighteen (18) months after the cause of action accrues. These disclaimers and limitations of liability shall apply regardless of the form of action, whether in contract, tort or otherwise, and further shall extend to the benefit of Seller's vendors, appointed distributors and other authorized resellers as third-party beneficiaries.

PROHIBITION FOR HAZARDOUS USE: Goods sold hereunder generally are not intended for application in and shall not be used by Buyer in the construction or operation of a nuclear installation or in connection with the use or handling of nuclear material, or for any hazardous activity or critical application, where failure of a single component could cause substantial harm to persons or property, unless the goods have been specifically approved for such a use or application. Seller disclaims all liability for any loss or damage resulting from such unauthorized use and Buyer shall defend, indemnify and hold harmless the Seller against any such liability, whether as a result of breach of contract, warranty, tort (regardless of the degree of fault or negligence), strict liability or otherwise.

EXPORT CONTROL: Buyer shall comply with all export control laws and regulations of the United States, and all sales hereunder are subject to those laws and regulations. Seller shall not be named as shipper or exporter of record for any goods sold hereunder unless specifically agreed to in writing by Seller. At Seller's request, Buyer shall furnish Seller with end-user and end-user information to determine export license applicability. Buyer warrants, in accordance with U.S. Export Law, that goods sold hereunder shall not be destined for facilities or activities involving nuclear, chemical or biological weapons, or related missile delivery systems in named prohibited regions or countries.

GOVERNING LAW: Seller intends to comply with all laws applicable to its performance under any order. All matters relating to interpretation and effect of these terms and any authorized changes, modifications or amendments thereto shall be governed by the laws of the Commonwealth of Pennsylvania. No government contract regulations or clauses shall apply to the goods or services, this agreement, or act to bind Seller unless specifically agreed to by Seller in writing.

NON-WAIVER BY SELLER: Waiver by Seller of a breach of any of these terms and conditions shall not be construed as a waiver of any other breach.

SEVERABILITY AND ENTIRE AGREEMENT: If any provision of these terms and conditions is unenforceable, the remaining terms shall nonetheless continue in full force and effect. This writing, together with any other terms and conditions Seller specifically agrees to in writing, constitutes the entire terms and conditions of sale between Buyer and Seller and supercedes any and all prior discussions, and negotiations on its subject matter.

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