safety-kleen.

3279

January 29, 1993

Ms. Jennifer Eberle
Alameda County
Health Care Services Agency
UST Local Oversight Program
80 Swan Way
Room 200
Oakland, CA 94621

RE: Safety-Kleen Corp.
404 market Street
Oakland, CA

Dear Ms. Eberle:

Enclosed for your review is the **Product Recovery System** Installation Report for the above-referenced facility. The system installation was initiated on January 15, 1993, and completed on January 19, 1993. However, on the 19th, the flow totalizer was not operating properly. The totalizer was repaired and operational by January 27th. It is estimated that, to date, approximately 30 gallons have been pumped from the subsurface.

total? on m.s? gw + m.s

A product recovery summary report for the first two weeks of January 1993 is being forwarded to you under separate cover. That report summarizes the product recovered from wells RW-1 and MW-9 prior to installation of the Product Recovery System.

S-K believes that the information requested by your agency has adequately been addressed. Please contact me at (310) 831-3903 should you have questions or concerns regarding the provided information.

Sincerely,

Anne Lunt
Sr. Project Manager-Remediation
Safety-Kleen Corp.

cc: Gary Long, Safety-Kleen
Greg Hoehn, Seacor

777 BIG TIMBER ROAD ELGIN, ILLINOIS 60123 PHONE 708/697-8460 FAX 708/697-4295

FEDERAL EXPRESS

QUESTIONS? CALL 800-238-5355 TOLL FREE.

AIRBILL
PACKAGE
TRACKING NUMBER 5776075701

5776075701

RECIPIENT'S COPY

1 Date 1/24/93

From (Your Name) Please Print: Mike Wray
Your Phone Number (Very Important): (510) 671-2387
Company: Groundwater Technology, Inc.
Department/Floor No.:
Street Address: 4057 Port Chicago Hwy
City: Concord State: CA ZIP Required: 94520

2 To (Recipient's Name) Please Print: Jennifer Eberle
Recipient's Phone Number (Very Important): ( )
Company: Alameda County Health Care Agency
Department/Floor No.:
Exact Street Address (We Cannot Deliver to P.O. Boxes or P.O. Zip Codes.): 80 Swan Way Room 200
City: Oakland State: CA ZIP Required: 94621

YOUR INTERNAL BILLING REFERENCE INFORMATION (optional) (First 24 characters will appear on invoice.)
20501659.63

H IF HOLD FOR PICK-UP, Print FEDEX Address Here
Street Address:
City State ZIP Required

3 PAYMENT 1 ☐ Bill Sender 2 ☐ Bill Recipient's FedEx Acct. No. 3 ☐ Bill 3rd Party FedEx Acct. No. 4 ☐ Bill Credit Card 5 ☐ Cash/Check

4 SERVICES (Check only one box)

Priority Overnight (Delivery by next business morning.)
11 ☐ YOUR PACKAGING
16 ☐ FEDEX LETTER*
12 ☐ FEDEX PAK*
13 ☐ FEDEX BOX
14 ☐ FEDEX TUBE

Standard Overnight (Delivery by next business afternoon. No Saturday delivery.)
51 ☐ YOUR PACKAGING
56 ☐ FEDEX LETTER*
52 ☐ FEDEX PAK*
53 ☐ FEDEX BOX
54 ☐ FEDEX TUBE

Economy Two-Day (Delivery by second business day.†)
30 ☐ ECONOMY

Government Overnight (Restricted to authorized users only)
46 ☐ GOVT LETTER
41 ☐ GOVT PACKAGE

Freight Service (for packages over 150 lbs.)
70 ☐ OVERNIGHT FREIGHT** (Confirmed reservation required)
80 ☐ TWO-DAY FREIGHT**
†Delivery commitments may be later in some areas.
*Declared Value Limit $500
**Call for delivery schedule.

5 DELIVERY AND SPECIAL HANDLING (Check services required)
1 ☐ HOLD FOR PICK-UP (Fill in Box H)
2 ☐ DELIVER WEEKDAY
3 DELIVER SATURDAY (Extra charge) ☐ (Not available to all locations)
4 ☐ DANGEROUS GOODS (Extra charge)
5 ☐
6 ☐ DRY ICE ____ Lbs.
7 ☐ OTHER SPECIAL SERVICE
8 ☐
9 ☐ SATURDAY PICK-UP (Extra charge)
10 ☐
☐
12 ☐ HOLIDAY DELIVERY (If offered) (Extra charge)

6

PACKAGES	WEIGHT In Pounds Only	YOUR DECLARED VALUE
1		
Total 1	Total	Total

DIM SHIPMENT (Chargeable Weight)
☐ ____ lbs.
L x W x H

Pickup At
1 ☐ Regular Stop 3 ☐ Drop Box
2 ☐ On-Call Stop 4 ☐ B.S.C. 5 ☐ Station

7 Release Signature:

Emp. No. Date
☐ Cash Received
☐ Return Shipment
☐ Third Party ☐ Chg. To Del. ☐ Chg. To Hold
Street Address
City State Zip
Received By: X
Date/Time Received FedEx Employee Number

Federal Express Use
Base Charges
Declared Value Charge
Other 1
Other 2
Total Charges

REVISION DATE 2/92
PART #137200 08/FE
FORMAT #126
126
© 1991-92 FEDEX
PRINTED IN U.S.A.

GROUNDWATER TECHNOLOGY, INC.

4057 Port Chicago Highway, Concord, CA 94520 (415) 671-2387
FAX: (415) 685-9148

January 28, 1993

Ms. Anne Lunt
Safety-Kleen Corporation
P.O. Box 1429
San Pedro, CA 90733-1421

RE: PRODUCT RECOVERY SYSTEM INSTALLATION
404 Market Street
Oakland, California

Dear Ms. Lunt:

This correspondence summarizes the installation tasks and provides the technical documentation and equipment manufacturers information pertaining to the product recovery system installed at the above referenced location during the period of January 15 to January 27, 1993.

Installation Chronology

1/15/93 - California Electric Company (CEC), under the supervision of and in direct contract to Groundwater Technology, Inc., began installation of the electrical portion of the product recovery system at the site.

1/18/93 - CEC continued the electrical installation. Groundwater Technology personnel began the installation of the product recovery system.

1/19/93 - The product recovery system installation was completed. Dennis Hunt, representing the City of Oakland's Development Services Department, inspected the installation and signed his approval on the electrical permit. Groundwater Technology personnel energized the product recovery system and verified that it was functioning properly. The product pump control timer was set to operate the product pump on a continuous 2-hours-off/30-seconds-on schedule in accordance with the manufacturers instructions for initial setup. Following successful startup of the system, the pumping cycle will be adjusted to maximize product recovery by increasing the pumping phase duration of the product recovery cycle. Approximately 5-inches of separate-phase product thickness was measured in the recovery well prior to activation of the product recovery system.

During the product pumping test, it was noted that the flow totalizer did not register, even though the pump was clearly pumping product. At that time, it was suspected that the meter was faulty or that it may not have been sensitive enough to register the low flow rate.

The product recovery system was activated and, except for the flow totalizer, working properly upon leaving the facility.

The manufacturer of the flow totalizer meter was contacted and they indicated that the meter is fully capable of registering the low flows. They suggested that the meter should be taken apart and cleaned.

1/27/93 - Upon arrival, it was noted that the system was pumping product. The flow meter was disassembled, cleaned, and reinstalled. The product pump was then manually tested and the flow meter did register that product had been pumped. The system was operational upon leaving the facility.

The product recovery system is designed to pump at a rate of approximately ½-gallon per minute. With the equipment timer set as described above, approximately three gallons of product per day should be pumped from the subsurface. Because the flow totalizer was not operating properly at startup, an accurate determination of product removed from the subsurface since startup cannot be made at this time. However, to date, using the design flow rate of the equipment approximately 30 gallons of product has been recovered since startup on January 19, 1993.

Documentation

The following documentation is included in attachments:

ATTACHMENT A
- Figure 1 - Site Location Map
- Figure 2 - Product Recovery System Plan
- Figure 3 - Product Recovery System Schematic
- Figure 4 - Existing Waste Solvent Tankfull Alarm Circuit Modification Ladder Diagram

ATTACHMENT B
Equipment Manufacturers Specification Sheets
- H2 Oil Recovery Equipment - product recovery system
- Great Plaines Industries, Inc. - product flow totalizer

ATTACHMENT C
Copy of Electrical Permit

At this time, the product recovery system is installed and operating properly. If you have any questions about the system or its operation, please do not hesitate to contact me in our Concord office at (510) 671-2387.

Sincerely,
GROUNDWATER TECHNOLOGY, INC.

Frank C. Seiler
Project Engineer

Michael J. Wray
Project Manager

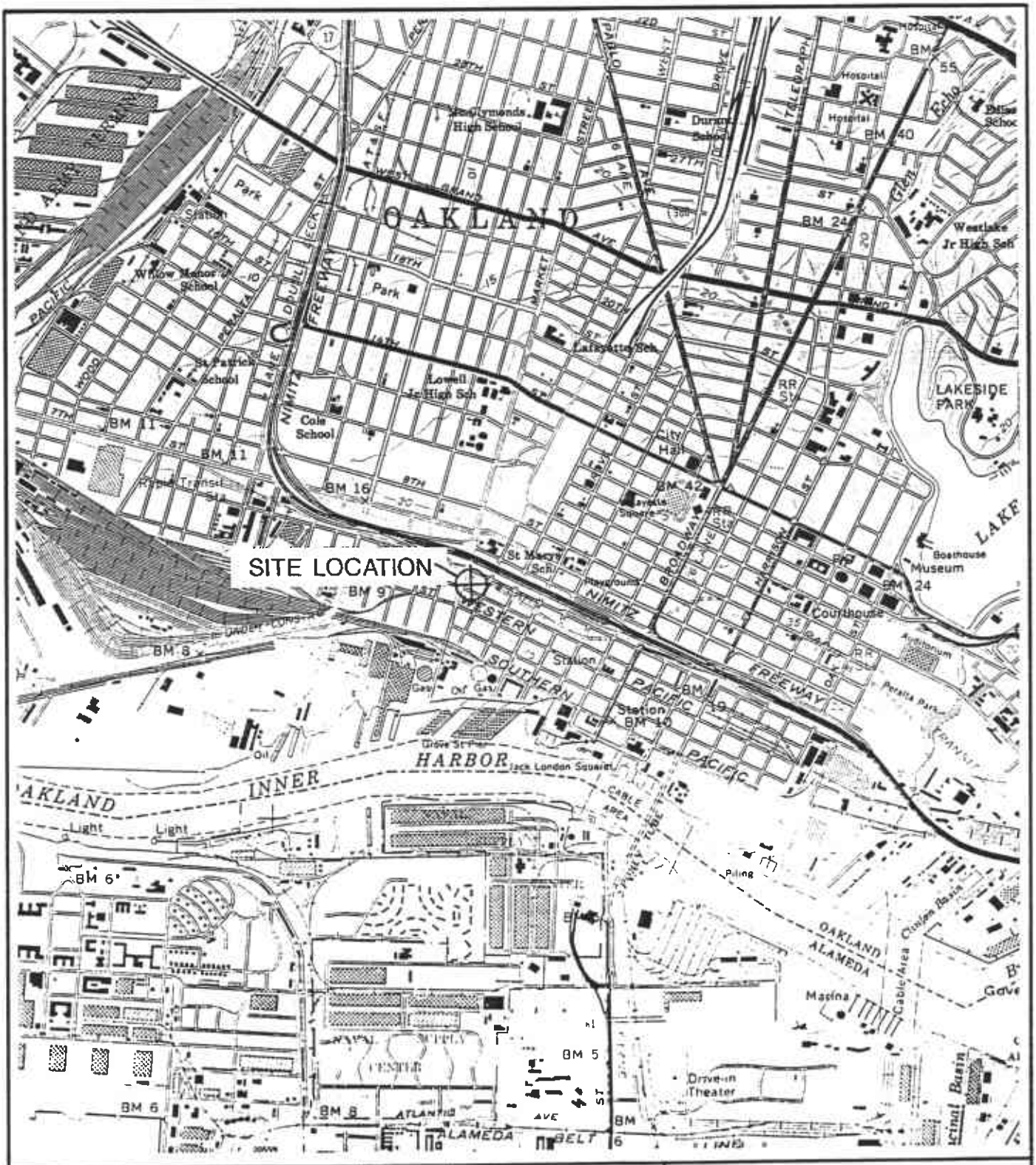
attachments

SAFETY-K/OAKPRINS.LTR

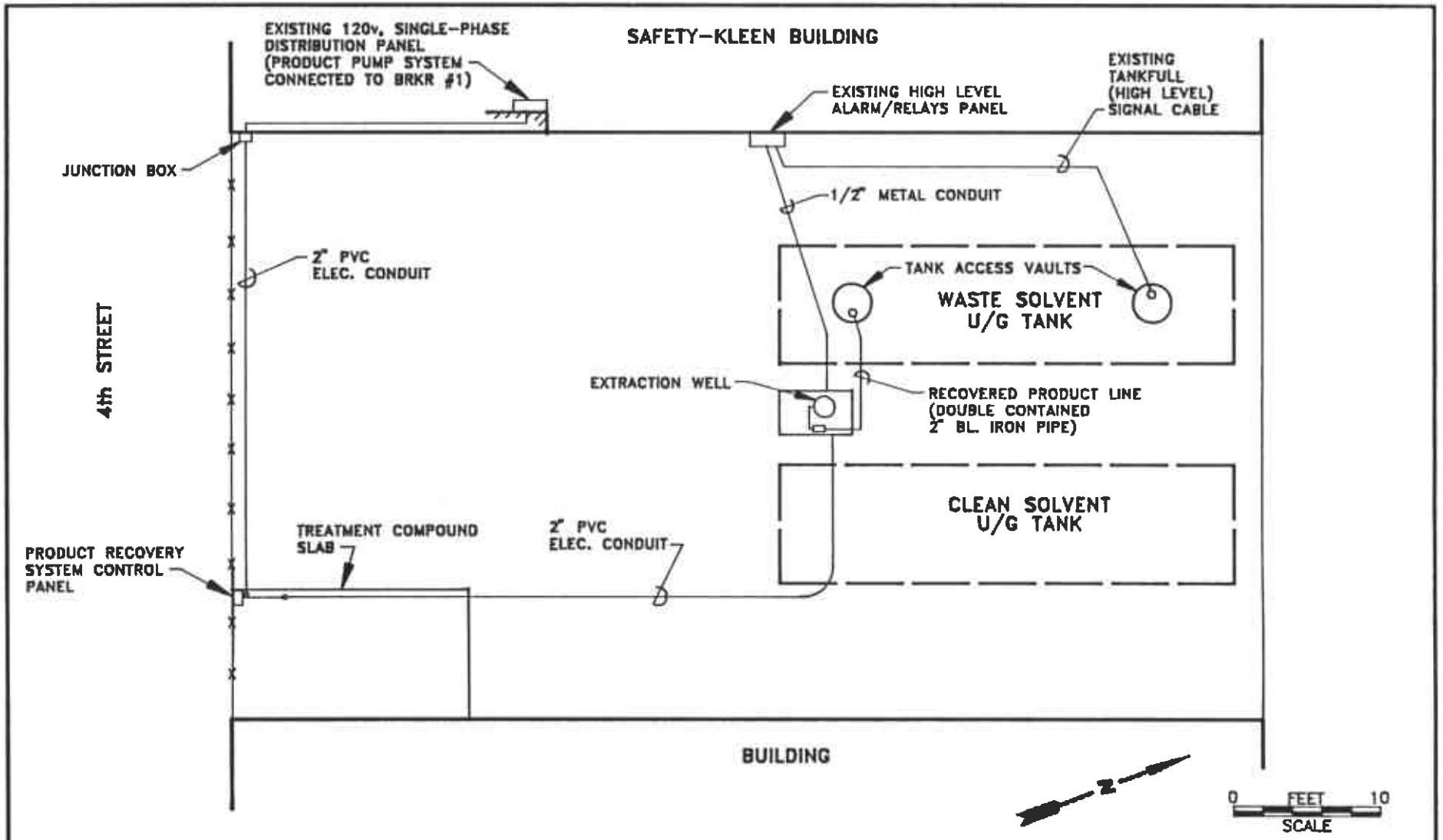
seal? recognized professional?

GROUNDWATER TECHNOLOGY, INC.

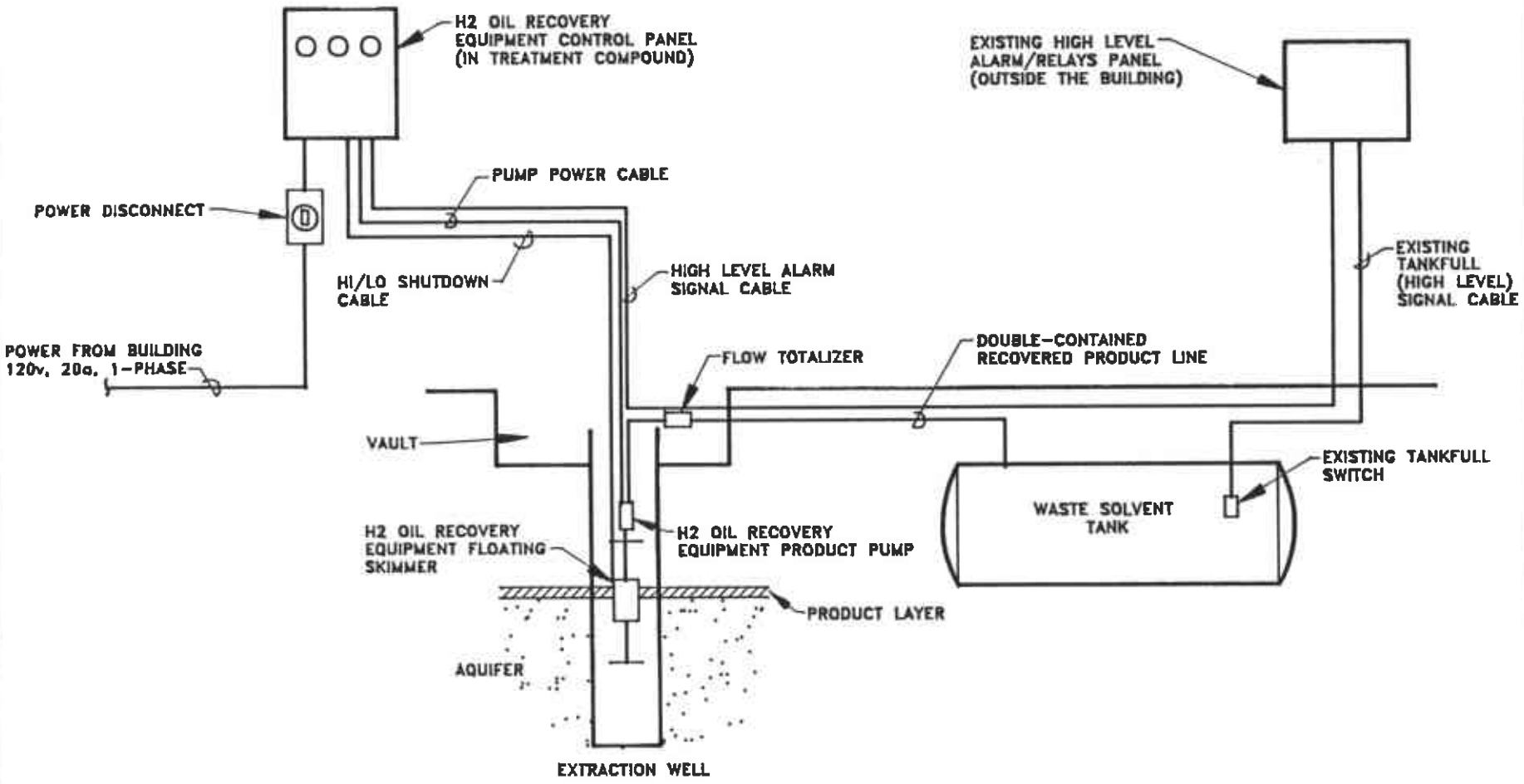
ATTACHMENT A



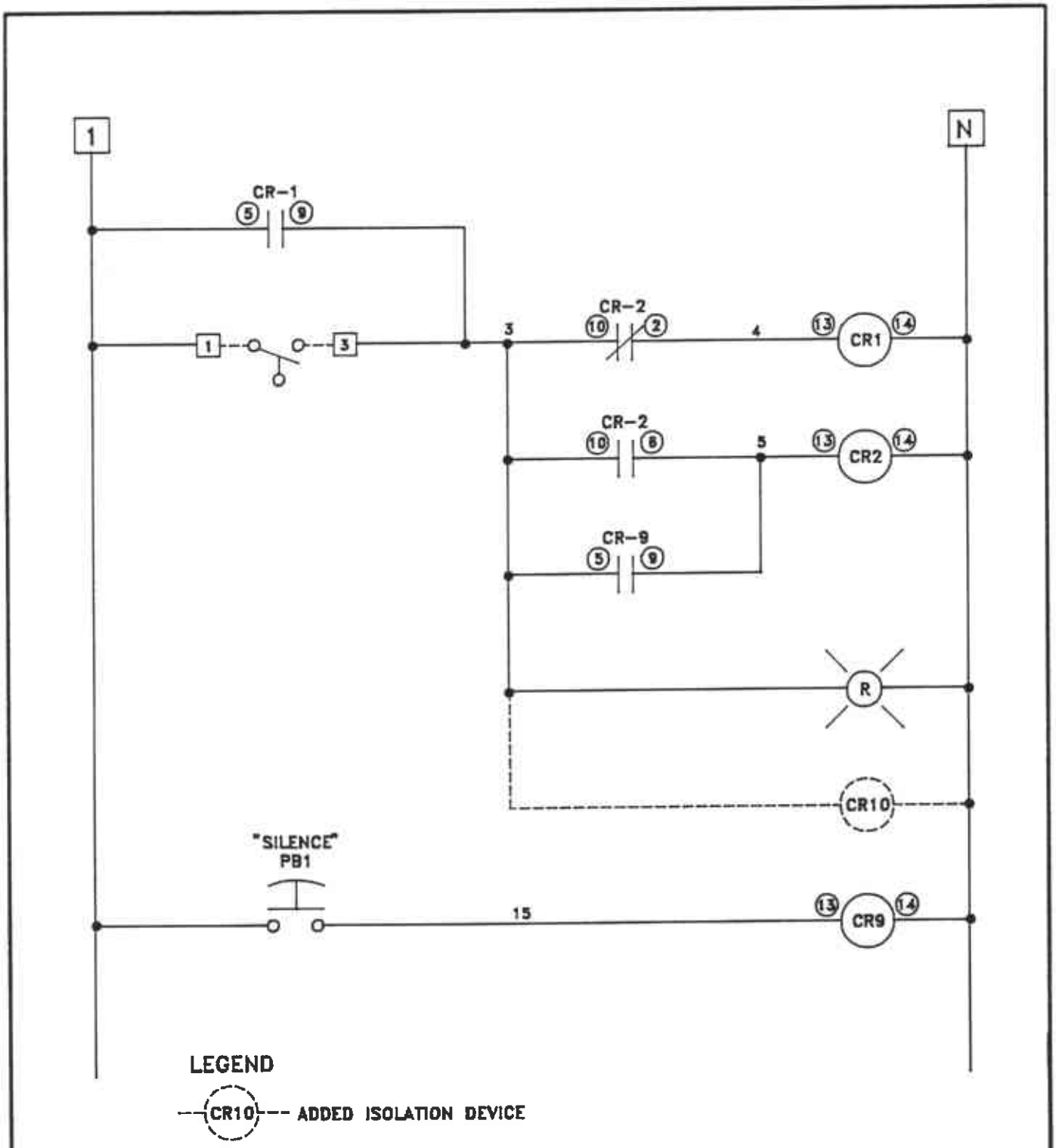
GROUNDWATER TECHNOLOGY 4057 PORT CHICAGO HWY CONCORD, CA 94520 (510) 671-2387	N	SCALE: 0 FEET 2000	**SITE LOCATION MAP**
		CLIENT: SAFETY-KLEEN CORPORATION	DATE: 3/3/92
		LOCATION: 404 MARKET STREET OAKLAND, CALIFORNIA	FIGURE: 1



GROUNDWATER TECHNOLOGY 4057 PORT CHICAGO HWY CONCORD, CA 94520 (510) 671-2387				PRODUCT RECOVERY SYSTEM PLAN			
CLIENT: SAFETY-KLEEN CORPORATION				LOCATION: 404 MARKET STREET OAKLAND, CALIFORNIA		REV. NO.: 0	DATE: 1/28/93
PM	PE/RG	DESIGNED FCS	DETAILED ML	ACAD FILE: PRECSYS	PROJECT NO.: 020503283		FIGURE: 2



GROUNDWATER TECHNOLOGY 4057 PORT CHICAGO HWY CONCORD, CA 94520 (510) 671-2387				**PRODUCT RECOVERY SYSTEM SCHEMATIC**		
CLIENT: SAFETY-KLEEN CORPORATION				LOCATION: 404 MARKET STREET OAKLAND, CALIFORNIA	REV. NO.: 0	DATE: 1/28/93
PM	PE/RG	DESIGNED FCS	DETAILED ML	ACAD FILE: RECSYS	PROJECT NO.: 020503283	FIGURE: 3



GROUNDWATER TECHNOLOGY	4057 PORT CHICAGO HWY. CONCORD, CA 94520 (510) 671-2387			EXISTING WASTE SOLVENT TANKFULL ALARM CIRCUIT MODIFICATION - LADDER DIAGRAM		
CLIENT: SAFETY-KLEEN CORPORATION				LOCATION: 404 MARKET STREET OAKLAND, CALIFORNIA	REV. NO.: 0	DATE: 1/28/93
PM	PE/RG	DESIGNED: FCS	DETAILED: ML	ACAD FILE: LADDERD	PROJECT NO.: 020503283	FIGURE: 4

ATTACHMENT B

IMPORTANT - PLEASE READ

FLOATING SKIMMER PUMP SYSTEM

Installation and Operation

Mount the control panel a legal height and distance from any source or potential source of explosive vapors such as your well head, product tank or other product handling equipment.

Install the tank overfill sensor into a 2" FPT opening in the top of your product recovery tank and connect the tank overfill sensor cable to the underside of the control panel.

Connect the hose at the bottom of the product pump onto the fitting at the top of the floating skimmer assembly. Use the enclosed nylon ties to bundle tie the support line, product hose, power cord and sensor cable.

Position the floating skimmer in the recovery well so the float is approximately midway between the lower and upper stops on the float assembly and 80% of the static product thickness above the product/water interface. Support the skimmer assembly in the well by tying off the support line to a round metal stake driven close to the well head.

Connect the product hose to an opening in the top of the product recovery tank using the elbow and tubing connector provided. Connect the high level/low level shut down cable to the underside of the underside of the control panel. (The small control plugs are interchangeable.)

Connect the power cable from the product pump to the underside of the control panel. Open the control panel and set the timer to 30 seconds on and 60 minutes off. Adjust the off time for longer or shorter durations depending on the product recharge of the recovery well. Detailed timer instructions are inside the control panel door.

Connect the control panel power cord to a 120 VAC receptacle. Move the pump kill switch to the on position.

A frequent check should be made on the control timer adjustment and the product skimmer position in the well.

Keep in mind that when the static product thickness is only 1 or 2 inches, the use of the floating skimmer recovery pump system is probably in vain. The intended use of this system is for phase 1 of a multiple phase recovery project where the static product thickness is substantial. No permits are required to operate this system and an immediate response is possible and also allows time for further site investigation and obtaining necessary permits for additional phases of recovery. A consideration for phase 2 would be a product recovery pump system, water depression pump system and water treatment.

The double timer (Eagle Signal) inside the control panel has an adjustable on cycle and an adjustable off cycle. The on cycle should always be set at 30 seconds and the off cycle should initially be set at 60 minutes. Detailed timer instructions are in the door pocket inside the control panel. A periodic check of the product thickness in the recovery well will determine if the off cycle needs to be set for a longer or shorter duration. An example would be if the skimmer system has been operating for 5 days with the on cycle time set at 30 seconds and the off cycle set at 60 minutes and the product thickness is 1 foot, the off cycle could be set at 45 minutes. Frequently check the product thickness to determine if the off cycle should be adjusted up or down, keeping in mind that the shorter the off cycle duration, the more frequent the pump on cycle and the potential of causing the pump to operate when there is no product to pump, which should be avoided. The minimum product thickness possible is approximately 1". The inlet of the floating skimmer is designed to float 1" above the oil/water interface.

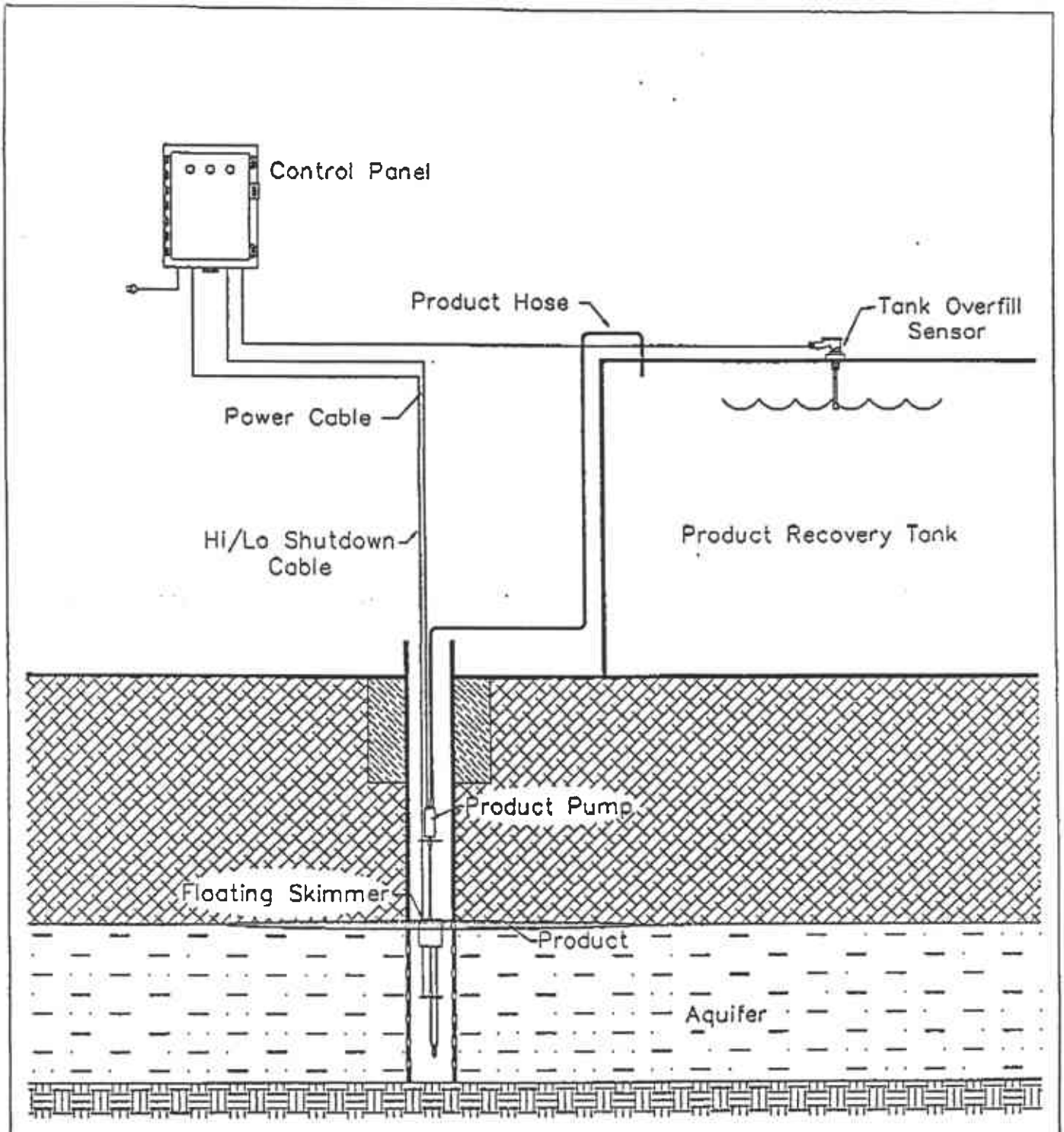
The amber light at the top of the control panel should illuminate when the control is connected to 120 VAC and the kill switch in the o position. If the amber light fails to illuminate, check the power source and the fuse inside the control panel. Always disconnect the power prior to opening the control panel.

The green light should illuminate when the pump is operating.

The red light should illuminate when the skimmer float is at the lower or upper limits of the floatation range or when the product holding tank is full. The floating skimmer assembly has 24" of floating range. When the float is at the lowest or highest position of this range the pump will not operate and the red light on the control panel will illuminate. When the red light is illuminated, slowly raise or lower the pump assembly until the red light goes out. Mark the product hose even with the top of the well casing just as the red light goes out and continue to move the pump assembly an additional 12" and tie off.

WARNING: Always move the kill switch to the off position and disconnect the power cord before opening control panel. Do not allow the pump to run dry for more than 30 seconds and do not allow water to enter the pump.

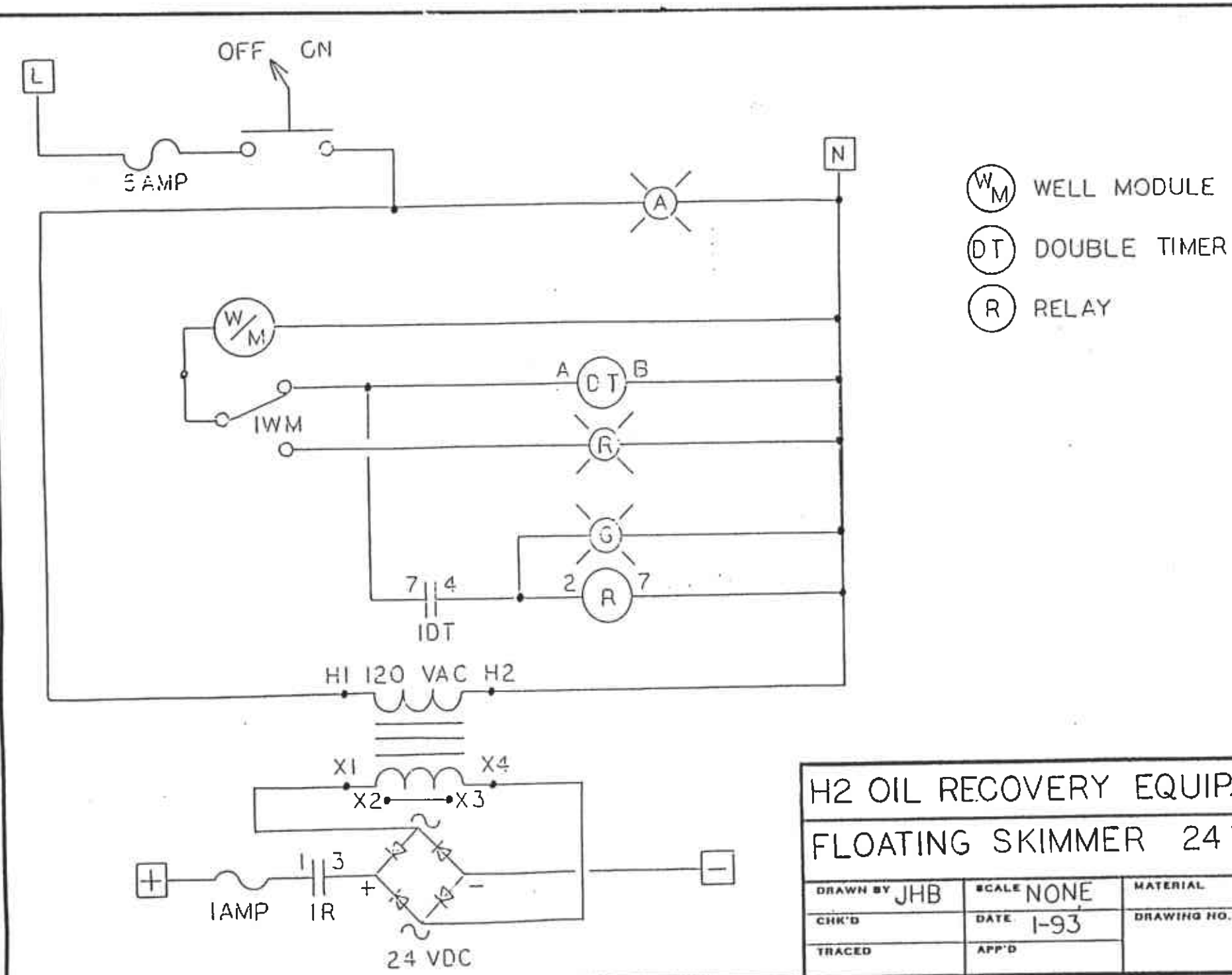
1991 H2 Oil Recovery Equipment P.O. Box 9028 Bend, Oregon 97708 Ph. (503) 382-7070



H2 Oil Recovery Equipment
Floating Skimmer Recovery Pump System

1991

P.O. Box 9028
Bend, Oregon 97708
Ph. (503) 382-7070



H2 OIL RECOVERY EQUIP.		
FLOATING SKIMMER 24 VDC		
DRAWN BY JHB	SCALE NONE	MATERIAL
CHK'D	DATE 1-93	DRAWING NO.
TRACED	APP'D	

H2 Oil Recovery Equipment, Inc.

(503) 382-7070 Fax (503) 382-2242

P.O. Box 9028 Bend, OR 97708

NOTE TO INSTALLER

1. This control panel is only suitable for installation in a non-hazardous location. Intrinsic circuits and non-energy generating or storing switch devices, extending from this control panel, are suitable for installation in Class I Division I groups ABCD Class II groups EFG locations. Refer to the enclosed sheet Installation of Series H2-27 Intrinsically Safe Sensing Circuit for complete installation instructions.

2. Conduit opening/openings already supplied on bottom of control box and identified as being for intrinsic circuits **MUST** be used for this purpose. All other circuits exiting from the box must be five (5) inches or more away from the supplied intrinsic circuit hole/holes.

3. Branch circuit main disconnect to be supplied by customer.

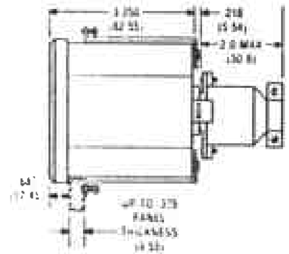
4. _____Inverse time delay circuit breaker(s) or equivalent required.
   A.
   B.
   C.
   D.

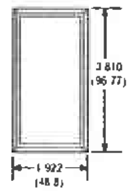
5. Use only 90°C temperature rated wire.

6. Tighten all screws to 35 in. lbs.

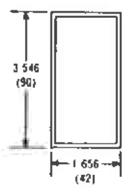
MOUNTING DIMENSIONS

Panel Mount



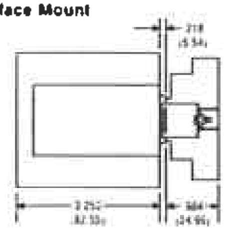


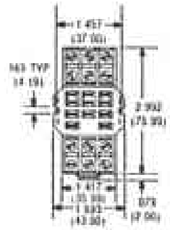
BEZEL



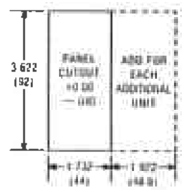
FRONT DIMENSIONS

Surface Mount



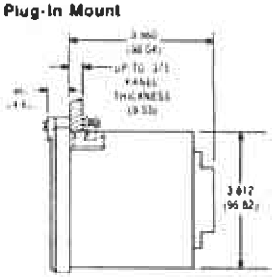


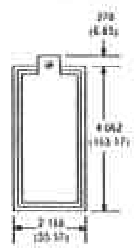
RELAY SOCKET

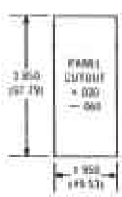


NOTE: PANELS THICKER THAN .140" REQUIRE ENLARGEMENT OF CORNERS TO ALLOW POSITIONING OF CORNER MOUNTING BRACKETS

Plug-In Mount







ORDERING INFORMATION

DA 10 10 A3 01

OFF Time - See Specifications For Time Range Catalog Symbol
ON Time - See Specifications For Time Range Catalog Symbol

VOLTAGE/FREQUENCY

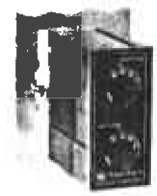
Symbol	Description
A3	120VAC 50/60 Hz or 120VDC
B3	240VAC 50/60 Hz or 240VDC

FEATURES

Symbol	Description
Blank	Standard, Off Time First, DPDT Relay Output
01	On Time First
03	One cycle only (Off Time First) (Requires factory components)

PRINTED U.S.A. REVISED 6/90

DA100 MINIFLEX® SERIES ON/OFF REPEAT CYCLE TIMER



The DA100 is a solid-state ON/OFF Repeat Cycle Timer housed in a 1/6 DIN molded NORYL® case. The timer uses CMOS integrated circuits for the timing function. Sixteen time ranges are available in any combination of ON and OFF periods. Two knobs referenced to a calibrated scale provide the individual time settings. Two front mounted pilot lights indicate timing status.

All connections to the DA100 timer are made through a standard square base relay socket. Accessories are available to convert the standard surface mounted unit into a panel mounted configuration, including a version with plug-in capability.

The standard DA100, with no factory assembly options, times its OFF period first and provides an isolated double pole - double throw relay contact output. Factory assembly options can be selected to provide other features such as ON-Time First timing. Another unique optional feature available with the DA100 series is One-Cycle Timing. The use of this feature provides a timing capability previously requiring two time delay relays.

OPERATION

The timing base for each of the two timing states (ON time and OFF time), is generated by an internal oscillator set by a precision capacitor and a dial adjustable potentiometer. This technology allows accurate control over the long time ranges available with the DA100 series.

The DA100 alternately times its OFF and ON periods as long as power is applied to the control input terminal. The output contacts change state at the completion of each timing period. The DA100 resets when power is removed from the control input. Specific status details are found in the operational mode section of this product bulletin.

SPECIFICATIONS

ON and OFF Time Ranges

Catalog Symbol	Dial Range	Minimum Setting	Catalog Symbol	Dial Range	Minimum Setting
10	3.5 Sec	.37 Sec	18	16 Min	1.6 Min
11	7 Sec	.75 Sec	19	32 Min	3.2 Min
12	15 Sec	1.5 Sec	20	64 Min	6.4 Min
13	30 Sec	3.0 Sec	21	128 Min	12.8 Min
14	60 Sec	6.0 Sec	22	4 Hr	25.6 Min
15	120 Sec	12.0 Sec	23	8 Hr	51.2 Min
16	4 Min	24.0 Sec	24	16 Hr	1.7 Hr
17	8 Min	48 Sec	25	32 Hr	3.4 Hr

Setting Accuracy
Within ± 10% of maximum range

Repeatability (Constant Voltage & Temperature)
± .1% of setting or 25 ms whichever is longer

Repeatability (Voltage & Temperature Variation)
Variable Voltage ± 1% of setting
Variable Temperature ± 2% of setting
Variable Voltage & Temperature ± 3% of setting

Reset Time
65 ms.

Cycle Progress
Pilot lights during "ON" time and "OFF" time

Voltage/Frequency
120 VAC (+10 -15%) 50/60 Hz or 120 VDC (+10 -15%)
240 VAC (+10 -15%) 50/60 Hz or 240 VDC (+10 -15%)

Burden	Standard
120 VAC or DC	1.8 VA Max
240 VAC or DC	2.3 VA Max

Output Rating
Relay - 10 amp steady state
Mechanical Lifetime - Over 20 million operations
Electrical Lifetime - Contingent on load characteristics

Power Interruption
Line voltage interruptions of 20 ms or less will not reset unit

Power On Response
30 ms Max. after application of line voltage to pins A and B

Operating Temperature
0° to 60°C (+32° to +140°F)

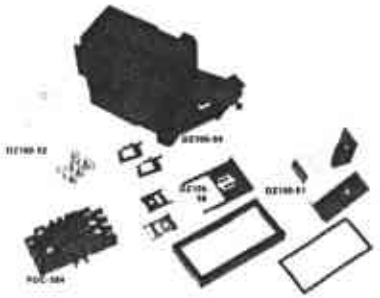
Transient Voltage Immunity
Unaffected by 50 μS, 600 V peak transients superimposed on line input

Vibration
Unaffected by 2.5G sinusoidal vibration magnitudes in both directions of three perpendicular mounting axes imposed from 10 to 1000 Hz

Laboratory Testing
U.L. Recognition E80337
C.S.A. Certification L26861
F.M. Approved J00C8A4.AF

Eagle Signal Controls
A Division of Mark IV Industries, Inc.
8004 Cameron Road, Austin, Texas 78753 U.S.A.

ACCESSORIES



DZ100-S1 BEZEL KIT for panel mounting. Kit includes bezel, bezel gasket, brackets and mounting hardware.

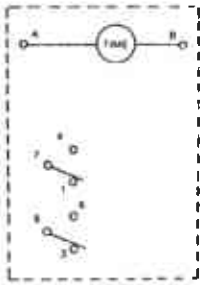
DZ100-S2 STRAIN/STRAIN RELIEF KIT for cable connector to unit.

DZ100-S4 PLUG-IN HOUSING for panel mounting units with plug-in convenience. Kit includes housing and mounting brackets.

DZ100-S6 LATCH AND LATCH RELEASE KIT for surface mounting. Kit includes latch, spacer, latch release and mounting hardware (Use with PDC-S84 Relay Socket).

PDC-S84 SQUARE BASE RELAY SOCKET

DA100 TERMINAL ASSIGNMENTS



DA100 OPERATIONAL MODE

The DA100 is a Repeat Cycle Timer which has a RESET and TIMING Mode. When the control input is open, the timer is RESET; when closed the timer is TIMING.

Of particular concern to the designer are:

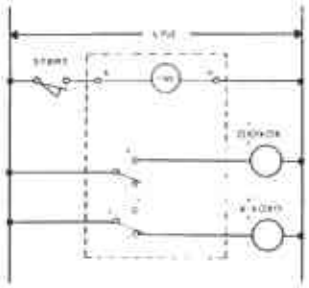
1. Timer start mode (ON-time first, OFF-time first)
2. Output status in RESET
3. Output status during first timing period
4. Output status during second timing period
5. Timer status after one ON and OFF timing period

To assist in the proper selection of timer and features, refer to the accompanying chart. To determine the proper wiring for the timer selected, consult the wiring diagrams on the next page. In these diagrams, "O" indicates contact open; "X" indicates contact closed. A dashed line separates the output status during RESET from the status during TIMING.

OUTPUT RESPONSE FROM DA100 TIMER

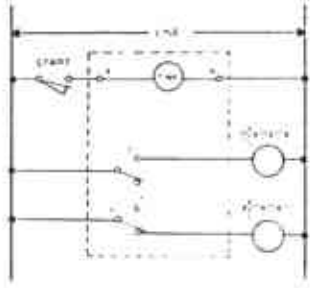
START FEATURE SELECTION	OUTPUT STATUS DESIRED		Connect Load To:
	RESET	TIMING	
00-OFF TIME FIRST	O	OXOX...	Normally open contacts
	X	XOXO...	Normally closed contacts
01-ON TIME FIRST	O	XOXO...	Normally open contacts
	X	OXOX...	Normally closed contacts
03-ONE CYCLE TIMING (OFF-TIME FIRST)	O	OX	Normally open contacts
	X	XO	Normally closed contacts

DA100 WIRING DIAGRAMS



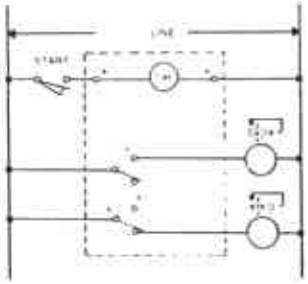
"00" FEATURE

Repeat Cycle Timing, OFF Time First. Outputs connected to the normally open relay contacts will be OFF when the timer is reset, and during the first timing period after timer start. Close control switch to start timing cycle. Open control switch to reset.



"01" FEATURE

Repeat Cycle Timing, ON Time First. Timer contacts are shown in reset and during the OFF-Time. Contacts transfer during ON-Time. Contacts will transfer as soon as control switch is closed. Timing cycle continues as long as control switch is closed. Timer resets when control switch is opened.



"03" FEATURE

One Cycle Timing, OFF Time First. Closing the control switch starts one OFF and one ON timing period. The timer resets after the ON period has been completed. To initiate another timing cycle, the start switch must be opened and reclosed.

INSTRUCTION SHEET

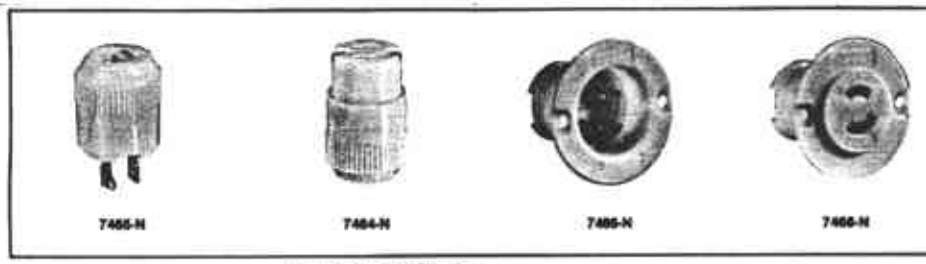
TECH·SPEC®

NEMA WL-1

BRYANT

Bryant Electric
Wiring Devices
Westinghouse Electric Corporation
Bridgeport, CT 06606

2 POLE 2 WIRE 15A 125V MIDGET LOCKING DEVICES



7465-N 7464-N 7466-N 7468-N

Features - Specifications

NYLON PLUG and CONNECTOR
- High-impact nylon construction
- Non-metallic "Automatic" cord grip
- Captive terminal screws are color coded for easy identification
- Dead front construction
- Individual wire pockets, clamp type terminals
- Conforms to NEMA and ANSI standards
- Two captive assembly screws
- Ribbed nylon exterior provides firm grip
- Device is keyed for proper assembly
- UL Listed File E1381 Guide AXUT
- CSA Certified File LR16215 Guide 20-T-2

MALE BASE and FEMALE EQUIPMENT RECEPTACLE
- Individual wire pockets, clamp type terminals
- High impact nylon construction
- Color-coded terminal screws for easy identification
- Conforms to NEMA and ANSI standards

MALE BASE
- UL Listed File 1381 Guide AXUT
- CSA Certified File LR16215 Guide 20-T-2

FEMALE EQUIPMENT RECEPTACLE
- UL Listed File E2258 Guide RTRT
- CSA Certified File LR16215 Guide 365-E-1

ATTACHMENT PLUG

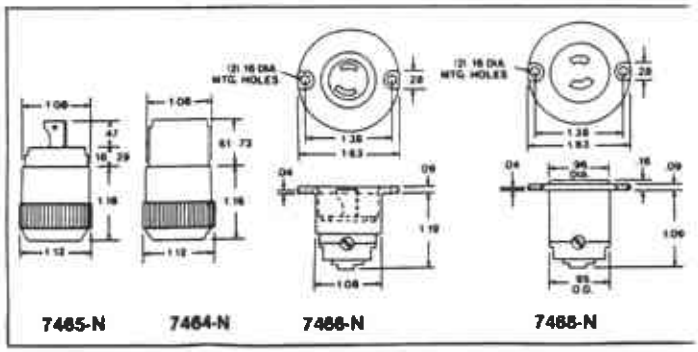
CATALOG NUMBER	DESCRIPTION	CORD DIA.
7465-N	White nylon polarized plug with non-metallic cord grip	.220-.425

CONNECTOR

CATALOG NUMBER	DESCRIPTION	CORD DIA.
7464-N	White nylon connector with non-metallic cord grip	.220-.425

EQUIPMENT DEVICES

CATALOG NUMBER	DESCRIPTION	CORD DIA.
7466-N	White nylon male equipment base, polarized	—
7468-N	White nylon female equipment receptacle	—



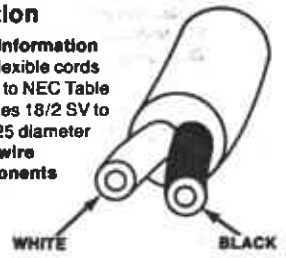
7465-N 7464-N 7466-N 7468-N

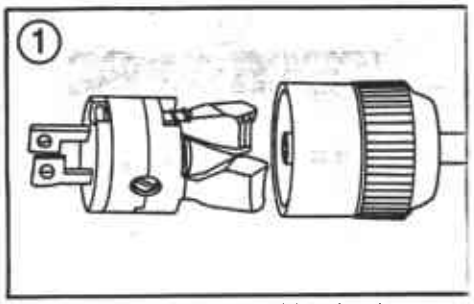
TECH-SPEC® 2 WIRE MIDGET LOCKING DEVICES

Wiring Instructions

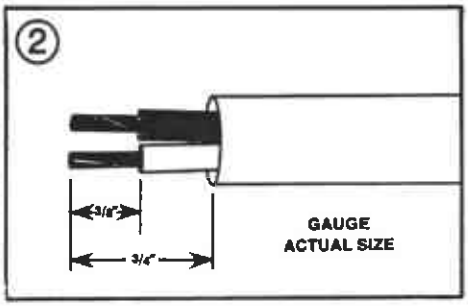
Cord Selection

General Wiring Information
For ampacity of flexible cords and cables, refer to NEC Table 400-5. Cord ranges 18/2 SV to 14/2 SJ .220-.425 diameter
Caution: Never wire electrical components while energized

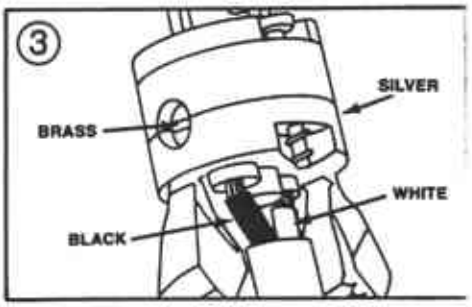




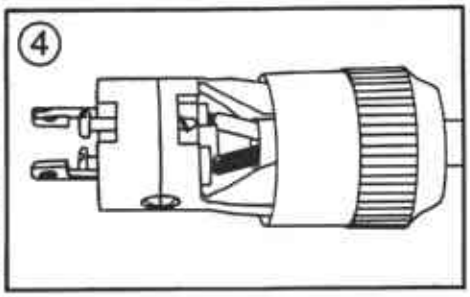
Back out two assembly screws and thread cord through cover.



Strip cord jacket and conductor to gauge. Trim filler materials flush with jacket.
DO NOT TIN CONDUCTORS.



A. Back off terminal screws.
B. Insert bare conductors in proper wire pockets, identifie by brass screw for black wire, silver screw for white wi
(Caution: do not leave loose strands of wire outside of wire pockets — unsafe conditions could result.)
C. Tighten terminal screws 10 in.-lbs.



A. Assemble body to cover by aligning cord grips in channels.
B. Tighten assembly screws 4-5 in.-lbs.

5

Male Base Equipment Receptacle

1. Strip conductor 3/8". Do not tin conductor.
2. Follow instructions in number 3 above.
3. See mounting dimensions on reverse side.

BRYANT

Bryant Electric, Wiring Devices, Westinghouse Electric Corporation, Bridgeport, CT 06606 **LO5262-03**

POWER OUTPUT DEVICES
CONTROL POWER TRANSFORMERS

CLASS 9070

TYPE K150D1

TYPE E03 240/480-120V

Square D manufactures two lines of Control Transformers. Both lines are specifically designed to handle high inrush associated with contactors and relays. All control transformers are copper wound, vacuum impregnated with solid polyester varnish and 100% tested in strict compliance with ANSI, CSA and UL codes. Windings are additive polarity. Two jumpers are supplied with each transformer.

TYPE K - The Type K transformer uses the most advanced insulating materials. This allows us to offer the advantage of different temperature classes. 50VA-250VA 55°C rise, 105°C temperature class. 300VA-350VA 80°C rise, 130°C temperature class. 500VA-5000VA 115°C rise, 180°C temperature class. Type K is 50/60 Hz rated, UL listed under File E61239, Guide XPTQ2 and CSA Approved under File LR37055, Guide 184-N-90.

TYPE E - The Type E is the HIGH EFFICIENT transformer. The 105°C temperature class provides extra regulation and lower losses. The Type E is the choice when parameters are narrow. The Type E is UL component recognized and CSA Approved under the same File and Guide as Type K.

CROSS REFERENCE*

EO17	K25
EO1	K50
EO18	K75
EO2	K100
EO3	K150
EO19	K200
EO15	K250
EO4	K300

EO16	K350
EO51	K500
EO61	K750
EO71	K1000
EO81	K1500
EO91	K2000
EO10	K3000
EO11	K5000

* Cross References are for VA size only — the Type E is not directly replaceable by the Type K in all sizes. Please see dimensions on pages 11-155 - 11-157.

HOW TO ORDER TYPE K:

TO ORDER SPECIFY:	CATALOG NUMBER		
	Class	Type	Voltage Code
• CLASS NUMBER • TYPE NUMBER • VOLTAGE CODE	9070	K50	D1

HOW TO ORDER TYPE E:

TO ORDER SPECIFY:	CATALOG NUMBER		
	Class	Type	Voltage
• CLASS NUMBER • TYPE NUMBER • VOLTAGE	9070	E01	240/480-120

VOLTAGE CODES*

D1	240/480-120
D2	240/480-24
D3	208-120
D4	277-120
D5	600-120
D6	380-110
D7	120-24
D8	240-120
D9	480-120
D12	480-240

D13	120-12/24
D14	208-24
D15	240/480-24/120
D16	600-24
D17	415-110
D18	208/277/380-95/115
D19	208/240/277/380/480-24
D20	208/230/460-115
D21	120-12
D22	480-277

D23	120/240-24
D24	120-120
D25	277-24
D26	208/240/416/480-120
D27	208/240/480-120
D28	230/460-30/115
D29	230/460-30/255
D30	230/460-255
D31	240/480-120/240
D32	230/460/575-95/115

* See pages 11-155 - 11-157 for availability of each voltage.

11

SELECTION GUIDE

1. Determine inrush and sealed VA of each coil in the control circuit.
2. Total the sealed VA of all coils.
3. Total the inrush VA of all coils at 100% secondary voltage. Add this value to the total sealed VA present (if any) when inrush occurs.
4. If the supply voltage is stable and varies no more than ±5%, refer to the 90% secondary voltage column. If voltage varies as much as ±10%, use the 95% volume.
5. Using the regulation chart, select a transformer.
   (A) With a continuous VA rating equal to or greater than the value obtained in step 2 *and*
   (B) With a maximum inrush VA equal to or greater than the value obtained in step 3.

REGULATION

Class 9070 transformers are designed with low impedance windings for excellent voltage regulation. This allows Class 9070 transformers to accommodate the high momentary inrush current caused when electromechanical devices such as contactors, relays and solenoids are energized. The secondary voltage drop between no load and momentary overload is low, helping assure satisfactory operation of magnetic components.

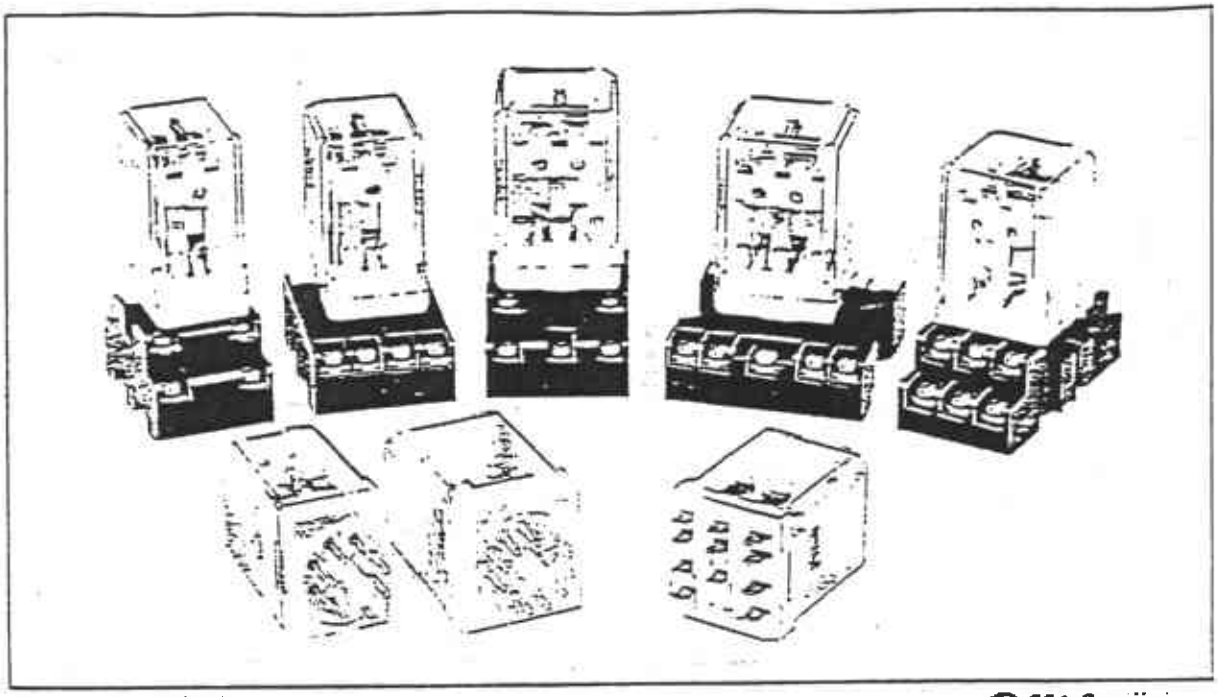
VA	95% Secondary Voltage		90% Secondary Voltage		85% Secondary Voltage	
	Type E	Type K	Type E	Type K	Type E	Type K
25	72	N.A.	109	N.A.	131	N.A.
50	141	170	208	238	249	308
75	327	238	390	353	554	471
100	403	298	450	447	685	599
150	648	590	910	805	1379	1023
200	1065	1065	1538	1538	2163	2163
250	1290	1290	1949	1949	2680	2680
300	1700	1237	2489	1775	3384	2298
350	2500	1480	4115	2104	5393	2712
500	3600	1636	4838	2651	6900	3441
750	6250	3482	8583	5042	13183	6584
1000	8750	4244	13257	6345	19462	8388
1500	16500	10023	22863	14735	35378	19304
2000	24300	12744	36588	19202	54737	25450
3000	28900	18176	44789	28096	98007	37797
5000	78500	29868	116406	48349	187579	66541

INRUSH VA at 30% Power Factor.
NEMA standards require magnetic devices to operate at 85% of rated voltage.

CP8 | | DISCOUNT SCHEDULE

We Respond℠

HEAVY-DUTY POWER TYPE RELAYS
LARGE CAPACITY 10A—1,2,3-POLES



UL Recognized
File No. E57770
E39804
E54245

CSA Certified
File No. LR35144

GENERAL

IDEC's Yellow Series relays are a heavy-duty general purpose relay, with large 10 amp contact capacity. RR Series relays are characterized by their high reliability, long life and are suited for use in industrial grade equipment, small control equipment, communications equipment, etc.

IDEC RR Series relays are available in pin and blade type terminals, each with 2- and 3-pole double throw contacts. Blade type one-pole contacts also available.

IDEC RR Series relays are UL recognized and CSA certified.

FEATURES

- The contact mechanism is secured directly to a molded resin base to eliminate the intermediate plate.
- Simple construction using the least possible number of components.
- Available in UL recognized and CSA certified types.
- Available with check button for test operation and indicator lights.
- Complete line of sockets and socket accessories available for flexible application.

TYPE LIST

Terminal Style	Contact Configuration	Basic Type	W/Indicator Light	W/Check Button	Side Flange	Side Flange W/Check Button
P,PA (Pin)	DPDT	RR2P-U	RR2P-UL	RR2P-UC	—	—
	3PDT	RR3PA-U	RR3PA-UL	RR3PA-UC	—	—
B,BA (Blade)	SPDT	RR1SA-U	RR1SA-UL	RR1SA-UC	RR1SA-US	RR1SA-USC
	DPDT	RR2SA-U	RR2SA-UL	RR2SA-UC	RR2SA-US	RR2SA-USC
	3PDT	RR3B-U	RR3B-UL	RR3B-UC	RR3B-US	RR3B-USC

NOTE: RR1SA and RR2SA are U.S. standard size.

SPECIFICATIONS

Contact Material	Silver (AG)
Contact Resistance	30mΩ maximum (initial value)
Operate Time	25ms maximum
Release Time	25ms maximum
Power Consumption	AC: Approx. 3VA (50Hz), 2.5VA (60Hz); DC: Approx. 1.5W
Insulation Resistance	100MΩ minimum (measured w/500V DC megger)
Dielectric Strength	Pin Type (RR2P, RR3PA) Bet. live and non-live parts: 1,500V AC, 1 minute Bet. contact circuit and operating coil: 1,500V AC, 1 minute Bet. contact circuits: 1,500V AC, 1 minute (1,000V AC bet. NO-NC contacts)
	Blade Type (RR1BA, RR2BA, RR3B) Bet. live and non-live parts: 2,000V AC, 1 minute Bet. contact circuit and operating coil: 2,000V AC, 1 minute Bet. contact circuits: 2,000V AC, 1 minute Bet. contacts of same polarity: 1,000V AC, 1 minute
Frequency Response	1,800 operations/hour
Temperature Rise	Coil: 153°F (85°C) max. Contact: 117°F (65°C) max.
Vibration Resistance	0 to 6g (55Hz maximum)
Shock Resistance	10g minimum
Life Expectancy	Electrical: Over 500,000 operations (120V, 50/60Hz, 10A) Mechanical: Over 10,000,000 operations
Operating Temperature	-22°F to +158°F (-30°C to +70°C)

COIL RATINGS

	Rated Voltage (V)	Rated Current (mA) ±15% @68°F		Coil Resistance (Ω) ±10% @68°F	Maximum Continuous Applied Voltage @68°F	Minimum Operate Voltage @68°F
		60 Hz	50 Hz			
AC	6	420	490	4.6	110% of rated voltage without overheating	80% of rated voltage
	12	210	245	20		
	24	105	121	80		
	120	18	21	2,200		
	240	10.5	12.5	8,930		
DC	6	240		25	110% of rated voltage without overheating	80% of rated voltage
	12	120		100		
	24	60		400		
	48	30		1,600		
	110	13.5		8,460		

CONTACT RATINGS

UL RATED

Voltage (V)	Resistive (A)	Inductive (A)
240AC	10	7
30DC	10	7

CSA RATED/NOMINAL RATING

Voltage (V)	Resistive (A)	Inductive (A)
120AC	10	7.5
240AC	10	7
30DC	10	7.5
110DC	—	0.5

HORSEPOWER RATING

Voltage	Motor Load
120V AC	1/4 hp
240V AC	1/3 hp

FORM H2-270

H2 OIL RECOVERY EQUIPMENT, INC.

BEND, OR

Installation

INSTALLATION OF SERIES H2-27 — INTRINSICALLY SAFE SENSING CIRCUIT

This bulletin should be used by experienced personnel as a guide to the installation of the H2-27. Selection or installation of equipment should always be accomplished by competent technical assistance. We encourage you to contact H2 Oil or its local representative if further information is required.

IMPORTANT: BEFORE PROCEEDING TO INSTALL AND WIRE THE CONTROL, READ AND THOROUGHLY UNDERSTAND THESE INSTRUCTIONS.

When installed according to these instructions, this device provides an intrinsically safe output for interface into Class I and II, Division 1, Groups A, B, C, D, E, F, and G Hazardous locations. Electrical equipment connected to associated apparatus should not exceed maximum voltage marked on product.

LOCATION: The control must be situated in a non-hazardous area where an explosive atmosphere will not exist at any time unless it is mounted in a suitable U.L. approved explosion-proof enclosure with suitable U.L. approved explosion-proof seals.

WIRING:

1. Intrinsically safe wiring must be kept separate from non-intrinsically safe wiring.
2. Intrinsically safe and non-intrinsically safe wiring may occupy the same enclosure or raceway if they are at least 2 inches (50mm) apart and separately tied down. Inside panels, field wiring terminals for intrinsically safe circuits must be separated by at least 2 inches (50mm) from non-intrinsically safe terminals.
3. Wire the control device(s) to the H2-27 relay as shown in the specific application wiring diagram on reverse side. A separate rigid metallic conduit should be used to enclose the conductors of the intrinsically safe control circuit.
4. An approved seal should be used at the point where the intrinsically safe control circuit wiring enters the hazardous area.

For intrinsically safe output wiring use #14 or #16 AWG type MTW or THHN wire. By using these wire types in conjunction with the following distance recommendations, you will not exceed the maximum capacitance for field wiring.

Use the following chart as a guide for maximum wire runs for differential level service (3 wire) field wiring.

Model	Max. Sensitivity (K OHMS)	Distance (Ft.)
H2-27XXDO	3	4,000
H2-27XXEO	10	900
H2-27XXGO	100	75

GROUNDING: Both mounting tabs of the H2-27 provide an electrical connection for earth grounding between the control's internal solid state circuitry and the enclosure chassis. To ensure proper grounding, use only metal screws and lock washers when mounting this control.

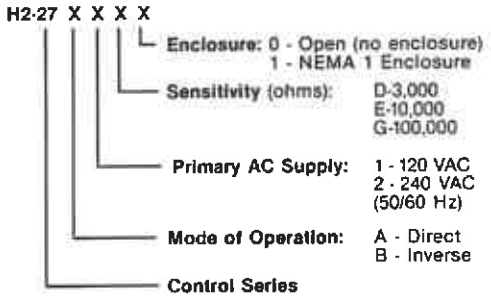
One of the two ground terminals provided on the intrinsically safe output terminal strip must be connected as reference to the same conductive media presented to terminals "H" and "L" (see applicable wiring diagram on reverse side).

Terminal G1 on the supply line/load side terminal strip is a redundant system ground terminal and should be connected to the earth ground buss of the control's AC supply line feeder.

NOTE:

1. Intrinsically safe terminals can be connected to any non-energy generating or storing switch device such as a pushbutton, limit or float type switch.
2. To prevent electrical shock from supply line/load side powered connections, the H2-27 should be mounted in a tool accessible enclosure of proper NEMA rated integrity.
3. For additional guidance on "Hazardous Location Installations" and "Intrinsically Safe Devices", consult ANSI/ISA standard RP 12-6 or NEC articles 500 through 516.

MODEL NUMBER DESIGNATION



SPECIFICATIONS

CONTACT DESIGN: SPDT (1 form C), one normally open (N.O.) and one normally closed (N.C.)

CONTACT RATING: 8 Amps - 250 VAC, 8 Amps - 30 VDC Resistive.

CONTACT LIFE: Electrical @ rated load = 100,000 cycles minimum. Mechanical = 10,000,000 cycles.

ELECTRONICS MODULE: Solid state components epoxy encapsulated in a black nylon shell.

SENSITIVITY RANGE: 0-100,000 Ohms maximum specific resistance.

TEMPERATURE RANGE: (minus) -40 deg F. to (plus) + 150 deg F.

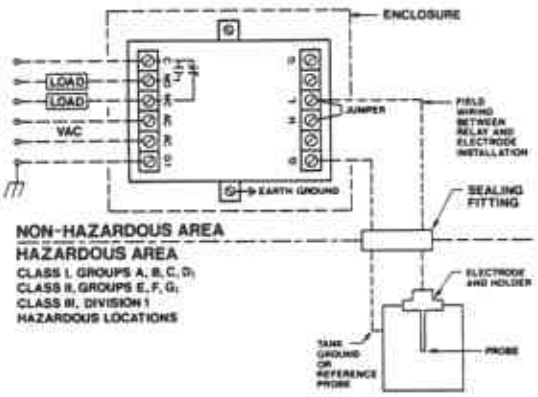
PRIMARY AC SUPPLY LINE: A) Voltage — (120, and 240 VAC) (plus) + 10% (minus) - 10%. B) Frequency — 50/60 Hertz. C) Power — (Relay energized) 1.7 VA.

SECONDARY CIRCUIT: Nominal 11 Volts, AC, RMS, Current: 2.3 Milliampere, RMS.

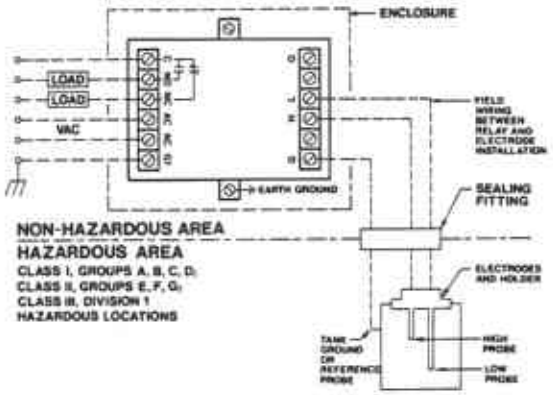
TERMINALS: Size 6 pan head screws with captivated wire clamping plate.

INSTALLATION OF H2-27 — INTRINSICALLY SAFE SENSING CIRCUIT

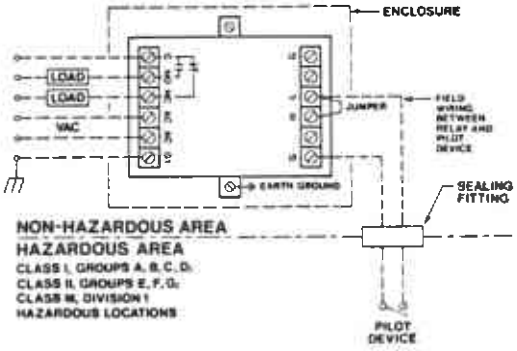
SINGLE LEVEL SERVICE - CONDUCTANCE ACTUATED:
Connect incoming AC (120, 240 VAC) supply to AC terminals: Incoming earth ground to terminal G1.
Install metallic jumper between terminals H-L.
Connect terminal L to the electrode.
Terminal G must be grounded to the tank if metallic. When the tank is non-metallic, terminal G must be connected to an additional electrode of length equal to the longest electrode.
NOTE: Jumper must be installed as shown to ensure proper operation. Wire contacts (C-NO) normally open and (C-NC) normally closed into load circuit as required.



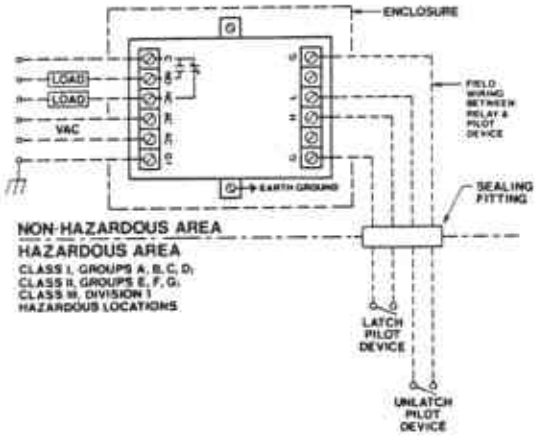
DIFFERENTIAL LEVEL SERVICE - CONDUCTANCE ACTUATED:
Connect incoming AC (120, 240 VAC) supply to AC terminals: Incoming earth ground to terminal G1.
Connect terminal H to high electrode and terminal L to low electrode.
Terminal G must be grounded to the tank if metallic. When the tank is non-metallic, terminal G must be connected on an additional electrode of length equal to the longest electrode.
Wire contacts (C-NO) normally open and (C-NC) normally closed into load circuit as required.



SINGLE INPUT (NON-LATCHING) - PILOT CONTACT ACTUATED:
Connect incoming AC (120, 240 VAC) supply to AC terminals: Incoming earth ground to terminal G1.
Install metallic jumper between terminals H-L.
Wire contacts (C-NO) normally open and (C-NC) normally closed into load circuits as required.
Connect the pilot contact to terminals G-L.
NOTE: Jumper must be installed as shown to ensure proper operation.



DUAL INPUT (LATCHING) - PILOT CONTACT ACTUATED:
Connect incoming AC (120, 240 VAC) supply to AC terminals: Incoming earth ground to terminal G1.
Wire contacts (C-NO) normally open and (C-NC) normally closed into load circuits as required.
Connect the latch pilot contact to terminals G-H and the unlatch pilot contact to terminals G-L.



GPI®

920654-3

Electronic Digital Meter
Owner's Manual

NOTE: *This equipment has been tested and found to comply with the limits of a Class A digital device, pursuant to Part 15 of the FCC rules.*

TABLE OF CONTENTS

Record For Future Reference.

Model Number _____

Serial Number _____

Purchase Date _____

GENERAL INFORMATION

Please read this entire owner's manual before installing or operating your meter. The information provided will help you receive years of dependable service. Retain this manual for future reference.

TECHNICAL SPECIFICATIONS

- Sealed Circuitry
- Field Replaceable Batteries (Min. Life - 2000 operational hrs.)
- Operation Temp. +14°F to +140°F -10°C to + 60°C
- Storage Temp. -40°F to +158° -40°C to + 70°C
- Not To Be Used To Measure Liquids For Resale

INSTALLATION

1. Install turbine in plumbing. The turbine rotor only rotates in one direction. The arrow on the outlet port should point in the direction of fluid flow.
2. To insure accurate readings, the fluid flow must have a uniform velocity profile through a cross section of the pipe. Install meter in hose or straight pipe with a length at least 20 times the meter bore diameter (20d) upstream and at least 5 times the meter bore diameter (5d) downstream. Place any flow control valves on the downstream side of the meter.
3. The meter can be installed horizontally or vertically. The meter should be calibrated for the position in which it is installed and should be recalibrated on a regular basis to ensure accuracy. (See Calibration.)
4. To prevent false readings, the meter should be installed at least 1-2 inches from electrical machinery.

OPERATION

A sleep mode (blank display) is used to conserve power and extend the life of the batteries. All totals and calibration data are retained while the computer is in the sleep mode.

The flow computer will "wake up" when fluid flow begins. The DISPLAY button will also awaken the unit. The operating mode and the active calibration curve will be unchanged from the last use. The flow computer will "go back to sleep" shortly after fluid flow stops.

The decimal in the display will automatically move right to display large totals.

The flow computer has one or two operator controls. The DISPLAY button controls most functions. The CALIBRATE button is used to access field calibration functions, but will be absent on models with single factory preset calibration.

The various flag indicators on the LCD display show what modes are available and which mode the computer is in. Each time the DISPLAY button is momentarily pressed, the display selects the next mode in a sequence of choices – TOTAL 1; TOTAL 2 ; TOTAL 3 ; RATE ; BYPASS.

Some of the described modes may not be available on all meter models.

The next mode in the sequence can be selected regardless of turbine activity.

The flow computer has up to 3 total registers, any of which may be resettable or LOCKED (non-user resettable).

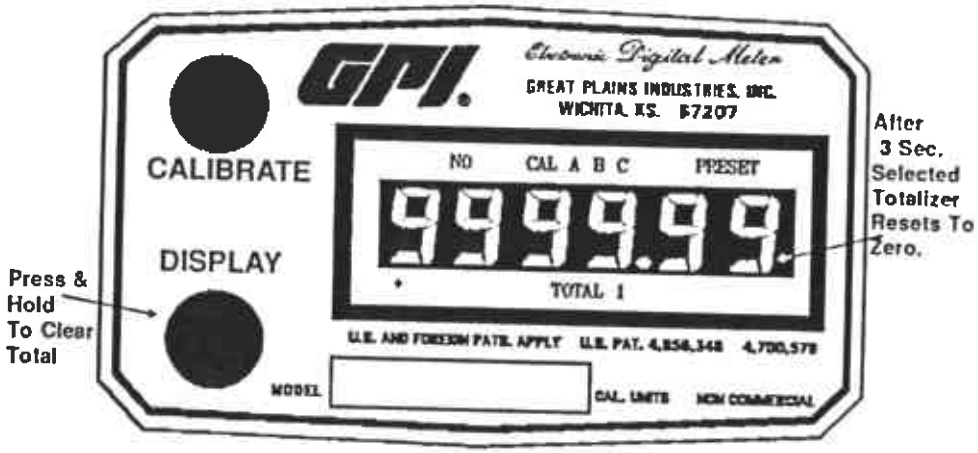
Clear Totals

1. Select the unlocked total register that is to be cleared. LOCKED total registers will not clear.
2. Press and hold the DISPLAY button. After three seconds, the reading will be reset to zero.

If fluid is flowing when the register is cleared, the selected register will not count while the DISPLAY button is depressed. All other registers continue to accumulate totals in the background. The * in the lower left corner of the display indicates flow through the meter.

FLOW RATE mode can be selected at any time without affecting the total registers. The flow rate indicator flag may initially flash to indicate that a full reading has not yet been taken.

BYPASS mode is indicated with the numeric portion of the display spelling out BYPASS. When bypass mode is selected, the computer is disconnected from the turbine and will not accumulate flow.



CALIBRATION

All calibration data is retained during sleep mode and battery changes.

Each flow computer has up to 3 independent calibration curves with 5 calibration points per curve. The flag indicators on the display indicate whether CAL A, CAL B or CAL C is selected. It also shows if the active curve is PRESET (non-user resettable) or if NO curve has been established.

Some of the described modes may not be available on all meter models.

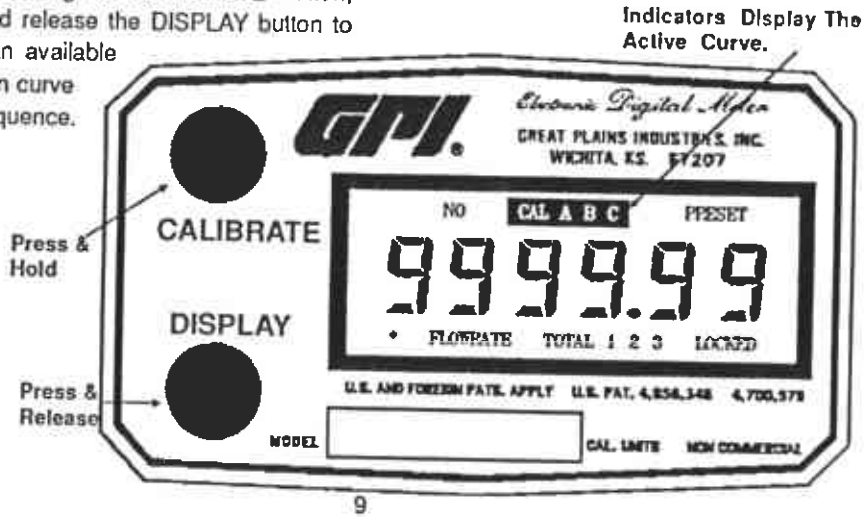
When the NO flag indicates the active curve is not set up, the totalizers will not operate until a new curve is installed or a different calibration curve is selected.

The computer uses the calibration curve to accurately calculate flow rate and flow volume. A single point curve is generally adequate for **non-viscous** fluids. (Such as water or gasoline)

Multiple point curves are required for accurate operation with **viscous** fluids (Such as lubricant or oil) at varying flow rates. The more points on the curve (up to 5 points) the more accurate the conversion.

Select Alternate Calibration Curve

While holding the CALIBRATE button, press and release the DISPLAY button to select an available calibration curve in the sequence.



⚠ CAUTION ! ! !

Read entire recalibration instructions before attempting to install a new calibration curve. Unless the operator fully understands the entire procedure, calibration information could be lost.

RECALIBRATION

Recalibration may only be started when flow through the turbine has stopped. During recalibration the flow computer will not fall asleep and the normal DISPLAY button functions are unavailable. A factory preset calibration curve will not enter recalibration.

Enter Recalibration Mode

1. Select a non-preset curve to be altered.
2. Press and hold the CALIBRATE button.
3. While holding the CALIBRATE button, press and hold the DISPLAY button. After 3 sec, the display will read CAL-P0 until the CALIBRATE button is released.
4. Release both buttons.

   The flow computer is now in recalibration mode. Any previous calibration curve will be erased when a new curve is installed.

   If no fluid is dispensed during a calibration run the old curve will remain. Dispensing fluid normally erases the old curve (See step 7b on page 14).

To Enter Calibration Mode

After 3 Sec. The Computer Will Enter Recalibration.

If less than 5 points are to be installed, recalibration mode can be exited at anytime between calibration runs by momentarily pressing the DISPLAY button while holding the CALIBRATE button.

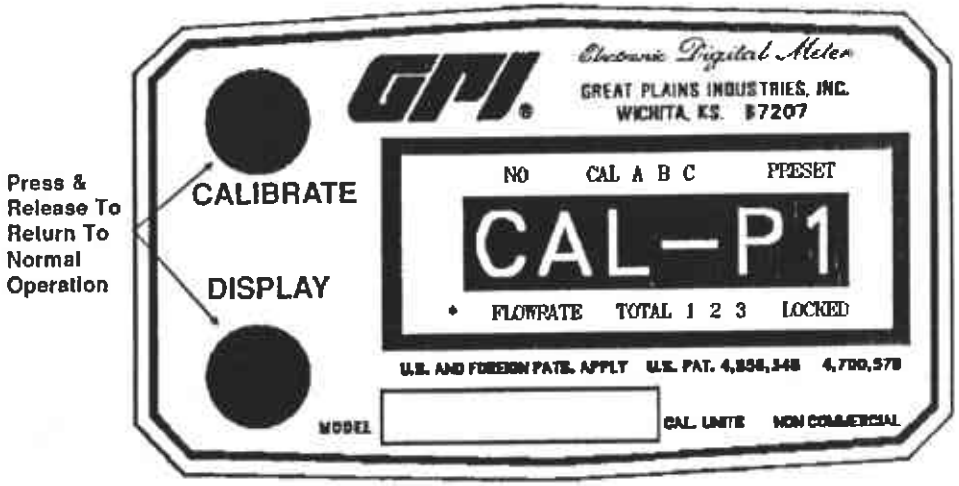
If installing all 5 points, the flow computer will automatically return to normal operation after the fifth calibration point is entered.

Calibration runs lasting less than 10 sec. will compromise accuracy. Do not vary flow rate or slowly restrict the fluid flow at end of a calibration run. Always use a smooth flow for maximum accuracy when measuring fluid or calibrating.

For highest accuracy, calibrate carefully.

Install Calibration Points

1. Enter recalibration mode. (See page 10.)
2. LCD blinks CAL-P1. (flow computer is ignoring flow.)
   Recalibration can be exited here by momentarily pressing both DISPLAY and CALIBRATE. Normal operation resumes and the existing calibration curve is retained.
3. Momentarily press CALIBRATE.
4. The display will stop blinking CAL-P1. Flow will now be counted for a new calibration point.



5. Dispense five units of fluid in one smooth run for best accuracy.

6. Stop flow and momentarily press CALIBRATE.

7a. LCD blinks CAL-P2. (GPI-4 is ignoring flow.)
To accept calibration with installed point(s), momentarily press both DISPLAY and CALIBRATE to return the GPI-4 to normal operation.
—OR—

7b. To abort recalibration and retain the existing curve, press CALIBRATE twice without dispensing any additional fluid.
The LCD will show "NO" and refuse to totalize. Restore normal operation by holding CALIBRATE and pressing DISPLAY until the curve that had "NO" displayed is selected again.
—OR—

7c. To continue calibration of additional points, adjust fluid system to a new flow rate and repeat steps 3, 4, 5, & 6 above to add additional points as desired (up to 5).

The New Calibration Point Has Been Acepted And The -4 EDM Is Ready To Set A Second Point.

Press & Release To Advance Calibration Stages.

MAINTENANCE

The GPI Electronic Digital Meter requires little maintenance.

An annual inspection and cleaning of the battery terminals is recommended.

After use with chemicals, always flush the meter to ensure that deposits don't accumulate on the meter's rotor.

Use the chemical manufacturer's suggested cleaning agent.

When flushing the meter, avoid exposing the computer housing to excess moisture.

The battery cavity is not completely water tight. Never emerse meter in water or cleaning fluid.

Never blow air or cleaning fluid under high pressure through the turbine. Doing so will damage rotor and void warranty.

Replacement of Batteries

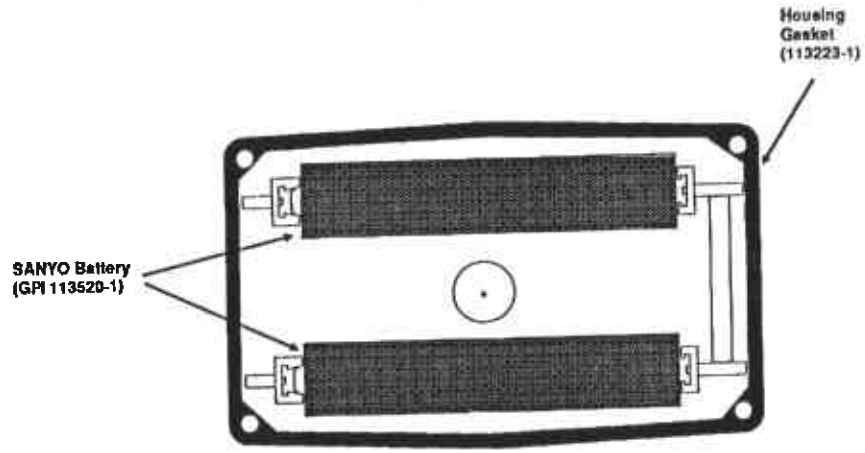
It is not necessary to remove the turbine from its plumbing to replace the batteries. All calibration curve data is preserved during battery change. **Register totals are reset to 0000.00 when the batteries are replaced.**

For safe operation of the electronic digital meter, Factory Mutual requires that replacement batteries must be SANYO Model CR12600SE (3V) CR-2NSE, which must be obtained from GPI under part number 113520-1.

1. Remove 4 screws from the computer assembly and remove from the turbine.
2. Remove the old batteries.
3. Remove any corrosion on the battery terminals.
4. Install new batteries. Ensure the batteries are positioned with the positive post in the correct position. The electronic digital meter will not operate properly improperly installed batteries.
5. Check the LCD display to ensure that normal display functions have resumed before reassembling. Reseat batteries if necessary.

6. After replacing the batteries, replace the computer assembly onto the turbine and secure with the 4 screws. Ensure that gasket is fully seated to avoid moisture damage. (Battery Cavity is not fully moisture proof.)

The flow computer automatically powers up after new batteries are installed.



GPI Electronic Digital Meter

Features Available

- Up to 3 total registers.
- Up to 3 calibration curves.
- Field calibration.
- Rate of flow.
- By-pass.
- Field replaceable batteries.
- Auto on.

For more information on available features or configuration parameters, contact GPI.

All features are not included in all meter models.

Configuration Parameters

- Input prescale of multiply by X or divide by X.
- Selectable field calibrating volume units.
- Selectable timebase and update of flow rate.
- Selectable starting decimal position.
- Selectable go to sleep time.
- Keep awake.
- Noise filter.

LIMITED WARRANTY

The GPI Electronic Digital Meter is warranted for a period of 1 year from date of purchase against defects in material and workmanship. This warranty will not apply if product is subjected to misuse, neglect, accident, improper installation or is altered or repaired by unauthorized persons. GPI's sole obligation under this warranty shall be limited to (at its option) repair or replacement and shall not be liable for any indirect or consequential damages or loss arising from any cause whatsoever.

This warranty is given in lieu of a other warranty expressed or implied. T warranty gives you specific rights and y may have other rights which vary fr state to state.

The warranty registration ca should be filled out, signed and sent GPI at time of purchase.

ATTACHMENT C

CITY OF OAKLAND
Development Services Department
1330 Broadway 2nd Floor
Oakland CA 94612

ELECTRICAL PERMIT APPLICATION

THIS IS YOUR PERMIT WHEN PROPERLY FILLED OUT, SIGNED, VALIDATED & FEES PAID

PERMIT NO. _____

CALL FOR INSPECTION 273-3444

DATE ISSUED 1-11-93 APPROVED BY CB

☐ NEW ☐ REPAIR ☐ ADDITION
☐ MOVE ☑ ALTERATION ☐ DEMOLITION

METER RESET AND SURVEY INSPECTION
☐ SFD ☐ APTS ☐ COMM/IND ELECTRIC 30.00 ☐ SURVEY

BUILDING PERMIT NO. SUBTL PLANT PERMIT ☐

BLDG. USE CHECK 50.90

DESCRIPTION OF WORK ITEM 3

BUILDING ADDRESS 460 Hamlet St
TRACT BLOCK PAGE LOT PARCEL

OWNER
NAME Sa Caty Klaus
ADDRESS 460 Hamlet St. PHONE
CITY Oakland STATE CA ZIP
TENANT'S NAME AND TELEPHONE NUMBER (IF APPLICABLE)

ARCH. ENGR.
NAME LICENSE #
ADDRESS PHONE
CITY STATE ZIP

CONTRACTOR
I hereby affirm that I am licensed under provisions of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code, and my license is in full force and effect.
LICENSE # AND CLASS 402393 C-10 CITY BUSINESS TAX #
CONTRACTOR NAME California Electric Inc
ADDRESS 2015 Adeline St
CITY Oakland STATE Ca. ZIP 94607 PHONE 835-6400
SIGNATURE DATE 1/13a-93

OWNER/BUILDER
I hereby affirm that I am exempt from the Contractor's License Law for the following reason (Sec. 7031.5, Business and Professions Code: Any city or county which requires a permit to construct, alter, improve, demolish, or repair any structure, prior to its issuance, also requires the applicant for such permit to file a signed statement that he is licensed pursuant to the provisions of the Contractor's License Law (Chapter 9 (commencing with Sec. 7000) of Division 3 of the Business and Professions Code) or that he is exempt therefrom and the basis for the alleged exemption. Any violation of Section 7031.5 by any applicant for a permit subjects the applicant to a civil penalty of not more than $500):

☐ I, as owner of the property, or my employees with wages as their sole compensation, will do the work, and the structure is not intended or offered for sale (Sec. 7044, Business Professions Code: The Contractor's License Law does not apply to an Owner of property who builds or improves thereon, and who does such work himself or through his own employees, provided that such improvements are not intended or offered for sale. If, however, the building or improvement is sold within one year of completion, the owner-builder will have the burden of proving that he did not build or improve for the purpose of sale).

☐ I, as owner of the property, am exempt from the sale requirements of the above due to: (1) I am improving my principal place of residence or appurtenances thereto, (2) the work will be performed prior to sale, (3) I have resided in the residence for the 12 months prior to completion of the work, and (4) I have not claimed exemption in this subdivision on more than two structures more than once during any three-year period. (Sec. 7044, Business and Professions Code)

☐ I, as owner of the property, am exclusively contracting with licensed contractors to construct the project (Sec. 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who contracts for such projects with a contractor(s) licensed pursuant to the Contractor's License Law).

☐ I am exempt under Sec. _____ B&PC for this reason _____

Signature of Owner or Authorized Agent DATE

WORKER'S COMPENSATION
I hereby affirm that I have a certificate of consent to self-insure, or a certificate of Worker's Compensation Insurance, or a certified copy thereof (Sec. 3800, Lab. C.)
Policy # Company Name
☐ Certified copy is hereby furnished
☑ Certified copy is filed with the city building department
Signature Date 14 Jan 93
(This section need not be completed if the permit is for three hundred dollars ($300) or less.)

I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the Worker's Compensation Laws of California.
Signature Date

NOTICE TO APPLICANT: If, after making this Certificate of Exemption, you should become subject to the Worker's Compensation provisions of the Labor Code, you must forthwith comply with such provisions or this permit shall be deemed revoked.

LENDER
I hereby affirm that there is a construction lending agency for the performance of the work for which this permit is issued (Sec. 3097, Civ. C.)
LENDER'S NAME
LENDER'S ADDRESS

APPLICANT
I CERTIFY THAT I HAVE READ THIS APPLICATION AND STATE THAT THE INFORMATION GIVEN IS TRUE AND CORRECT. I AGREE TO COMPLY WITH ALL LOCAL ORDINANCES AND STATE LAWS RELATING TO BUILDING CONSTRUCTION, AND I MAKE THIS STATEMENT UNDER PENALTY OF LAW. I HEREBY AUTHORIZE REPRESENTATIVES OF THIS CITY TO ENTER UPON THE ABOVE MENTIONED PROPERTY FOR INSPECTION PURPOSES. NOTICE!! THIS PERMIT WILL EXPIRE BY LIMITATION IF WORK IS NOT STARTED IN 90 DAYS OR IF WORK IS ABANDONED FOR MORE THAN 90 DAYS. DO NOT CONCEAL OR COVER ANY CONSTRUCTION UNTIL THE WORK IS INSPECTED AND THE INSPECTION IS RECORDED ON THE BACK OF THE JOB COPY OF THIS PERMIT. ALL INSPECTION REQUESTS ONE DAY IN ADVANCE OF THE INSPECTION.
☑ Contractor ☐ Owner
x _____ Date 1-13-93
Signature of Contractor or Owner or Agent
x _____
Also PRINT NAME
☐ Authorized Agent for ☒ Contractor ☐ Owner
Address of Agent Oakland Ca. TELEPHONE
CITY STATE ZIP

UTILITY A.S.C.D. _____ RMS SYMMETRICAL
SERVICE AMP. _____ WIRE SIZE/TYPE _____ VOLTS _____
PHASE _____ 2-W METERS _____ 3-W METERS _____ 4-W METERS _____

REF.	DESCRIPTION	NO.	EACH	FEES
15	SERVICE			
16	METERS (EXTRA)			
17	CIRCUITS	1		3
2	APARTMENTS (NEW > 4)			
18				
21	FIXTURES (INCANDESCENT)			
21	FIXTURES (FLOURESCENT)			
21	FIXTURES (HPS, HID)			
22	SWITCHES			
23	RECEPTACLES			
3	RANGE			
4	DRYER			
4	RANGE TOP, OVEN			
5	FAN (EXHAUST)			
6	DISPOSAL			
6	DISHWASHER			
7	AIR CONDITIONER (H.P.)			
24	HEATERS (AIR) K.W.			
24	HEATERS (WATER) K.W.			
29	FURNACE			
14	SWIMMING POOL			
14	OUTDOOR SPA, HOT TUB			
14	INDOOR SPA, HYDROMASSAGE			
14	FOUNTAIN			
12	CASE (BEV./FREEZER/VEG)			
10	GASOLINE DISP.			
26	SIGN (NEW)			
27	SIGN (EXISTING)			
28	OUTLINE LIGHTING			
30	MOVED BLDG.			
31	SERVICE (TEMPORARY)			
32	MISC. APPARATUS			
32	MOTORS	1	21	21
35	MFG. HOME, ADD'L SECT.			
36	RESET, SFD, APT., COMM.			
37	SURVEY INSPECTION			
38	SPECIAL INSPECTION			
	PERMIT FEE	(34	MINIMUM FEE)	$ 30 00
33	SURCHARGE 3%			90
	SUB TOTAL			30 90
1	APPLICATION FEE			30 00
	GRAND TOTAL			60 90

DATE	INSPECTION	INSPECTOR
	UNDERGROUND	
	ROUGH	
	UTILITY NOTIFIED	
1/19/93	FINAL	BB

PERMIT NO. E 1300078
DISTRICT NO. 1
A.M. _____ P.M. _____
ADDRESS 460 Hamlet St.