



State of Utah

DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF AIR QUALITY

Michael O. Leavitt 150 North 1950 West
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September 20, 1995

DAQE-860-95

James R. Van Orman
Director, Environmental Management
Department of the Air Force
Headquarters Ogden Air Logistics Center (AFMC)
Hill Air Force Base, Utah 84056

Re: Your Letter of 6 September 1995, Phase II Vapor Recovery at Building 454

Dear Mr. Van Orman:

The attachments to the referenced letter includes a letter from James J. Morgester, Chief of Compliance Division of the State of California's Air Resources Board, to Wayne Tarpley of Schlumberger Technologies. Mr. Morgester's letter provides a certification of Schlumberger 4000 Series dispensers that use the Gilbraco VaporVac Assist System.

Section 4.9.9 of the Utah Air Conservation Rules [R307-1-4.9.9B(1)] requires all phase II vapor recovery systems to be designed and operated in accordance with CARB's requirement of 95% gasoline vapor recovery while dispensing, transferring, or pumping gasoline from storage tanks to vehicles.

In accordance with UACR-307-1-4.9.9, therefore, this letter may serve as a certification of your proposed phase II vapor recovery system to be installed and operated in Building 454 at HAFB. The installation, operation and maintenance of the proposed Schlumberger Model 4330 fuel dispensers shall be done in accordance with the manufacturer's specifications and requirements.

Sincerely,

Russell A. Roberts, Executive Secretary
Utah Air Quality Board

RAR:MMB:DN



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS OGDEN AIR LOGISTICS CENTER (AFMC)
HILL AIR FORCE BASE, UTAH

RECEIVED
SEP 11 1995
Air Quality

Mr Russell A. Roberts
Executive Secretary
Division of Air Quality
1950 West North Temple
PO Box 144820
Salt Lake City, UT 84114-4820

6 Sep 1995

FAX 7774306

RE: Notice of Intent to Construct and Operate a Phase II Vapor Recovery System at Building 454

Dear Mr Roberts

This letter is to serve as a Notice of Intent to construct and operate a Phase II Vapor Recovery System at building 454. Building 454 is a commercial service station that sells fuel to military personnel and their families. This Phase II Vapor Recovery System is being installed as part of a project to upgrade the underground fuel storage tanks at this facility.

The proposed system is a Gilbarco VaporVac Phase II Vapor Recovery System, California Air Resources Board (CARB) Executive Order G-70-150-AB (attached). The specified system will utilize the Schlumberger 4000 Series Dispensers; CARB certified under letter # 94-8, April 25, 1994 (attached). The system will be installed according to the attached sketch. Specific equipment to be installed under this project is as follows;

- Schlumberger Model 4330 Fuel Dispensers (literature attached)
- OPW 11 VAI Bellowless Nozzles (literature attached)
- OPW 66CI Breakaway Couplings
- Dayco 8' Assist Vapor Recovery Hoses
- Dayco 12" Vapor Assist Whip Hoses

As per the requirements of R307-1-4.9.9.B.(1) the system has been certified by CARB to recover 95% of the gasoline vapor emissions resulting from dispensing fuel into motor vehicle fuel tanks. During 1994 the station dispensed approximately 3,000,000 gallons of motor vehicle fuel. Had this system been in place during 1994, VOC emissions from fuel dispensing at building 454 would have been 2,800 lbs (1.4 tons) rather than the 25,207.6 lbs (12.6 tons) reported in the 1994 emissions inventory.

24,674 ¹⁶⁵/₉₂

7/12/79

Based upon our analysis of R307-1-4.9.9 it is not clear whether an Approval Order is required for this installation. Your prompt response in approving this system and issuing the necessary approval documentation would be greatly appreciated as construction has already begun on the underground tank upgrades. If you have any questions or require any additional information regarding this matter please do not hesitate to contact Mike Graziano at 777-0359.

Sincerely

James R. VanOrman

JAMES R. VAN ORMAN
Director, Environmental Management

Atch

1. CARB Executive Order G-70-150-AB
2. CARB Certification Schlumberger Series 4000 Dispensers
3. Vapor Recovery System Piping Layout Sketch
4. Schlumberger Dispenser Model 4330, Literature
5. OPW 11 VAI Vapor Assist System Nozzle, Literature

Called 11/07/95 no answer, will try later

State of California
AIR RESOURCES BOARD

Executive Order G-70-150-AB

Modification to the Certification of the
Gilbarco VaporVac Phase II Vapor Recovery System

WHEREAS, the California Air Resources Board ("the Board" or "CARB") has established, pursuant to California Health and Safety Code sections 39600, 39601 and 41954, certification procedures for systems designed for the control of gasoline vapor emissions during motor vehicle fueling operations ("Phase II vapor recovery systems") in its "Certification Procedures for Gasoline Vapor Recovery Systems at Service Stations" as last amended December 4, 1981 (the "Certification Procedures"), incorporated by reference in Title 17, California Code of Regulations section 94001;

WHEREAS, the Board has established, pursuant to California Health and Safety Code sections 39600, 39601 and 41954, test procedures for determining the compliance of Phase II vapor recovery systems with emission standards in its "Test Procedures for Determining the Efficiency of Gasoline Vapor Recovery Systems at Service Stations" as last amended September 1, 1982 (the "Test Procedures"), incorporated by reference in Title 17, California Code of Regulations section 94000;

WHEREAS, Gilbarco Inc. ("Gilbarco"), requested and was granted certification of the VaporVac Phase II vapor recovery system ("VaporVac system") pursuant to the Certification Procedures and Test Procedures on March 26, 1993, by Executive Order G-70-150, and was granted a modifications to the certification by Executive Order G-70-150-AA, issued August 31, 1993;

WHEREAS, Gilbarco requested modification of the VaporVac system certification regarding manifolding at the vent lines in lieu of an underground manifold for existing installations, the storage tank pressure limitation, and interaction with the the Phase I system;

WHEREAS, Section VIII-A of the Certification Procedures provides that the Executive Officer shall issue an order of certification if he or she determines that the vapor recovery system conforms to all of the requirements set forth in Sections I through VII of the Certification Procedures; and

WHEREAS, I find that the VaporVac system conforms with all the requirements set forth in Sections I through VII of the Certification Procedures, and results in a

vapor recovery system which is at least 95 percent effective for attendant and/or self-serve use at gasoline service stations when used in conjunction with a Phase I vapor recovery system which has been certified by the Board.

NOW THEREFORE, IT IS HEREBY ORDERED that the certification, Executive Order G-70-150 AA, is hereby modified to allow manifolding at the vent lines in lieu of an underground manifold for existing installations, to remove the storage tank pressure limitation, and to clarify the interaction of the Phase I system with the Phase II system. The maximum dispensing rate for the VaporVac system shall be thirteen (13.0) gallons per minute. Exhibit 1 contains a list of the equipment certified for use with the VaporVac system. Exhibit 2 contains installation and performance specifications for the system.

IT IS FURTHER ORDERED that compliance with the certification requirements and rules and regulations of the Division of Measurement Standards of the Department of Food and Agriculture, the State Fire Marshal's Office, and the Division of Occupational Safety and Health of the Department of Industrial Relations is made a condition of this certification.

IT IS FURTHER ORDERED that the certified VaporVac system shall, at a minimum, be operated in accordance with the manufacturer's recommended maintenance intervals and shall use the manufacturer's recommended operation, installation, and maintenance procedures.

IT IS FURTHER ORDERED that any alteration of the equipment, parts, design, or operation of the systems certified hereby is prohibited, and deemed inconsistent with this certification, unless such alteration has been approved by the Executive Officer or his/her designee.

IT IS FURTHER ORDERED that installations of the system certified hereby shall perform in actual use with the same effectiveness as the certification test systems. If, in the judgment of the Executive Officer, a significant fraction of installations fail to meet the specifications of this certification, or if a significant portion of the vehicle population is found to have configurations which significantly impair the system's collection efficiency, the certification itself may be subject to modification, suspension or revocation. Any revision to the certification and/or test procedures relevant to this certification may be the basis for evaluation of the system and may constitute grounds for modification, suspension or revocation of this certification.

IT IS FURTHER ORDERED that all nozzles approved for use with the VaporVac system shall be 100 percent performance checked at the factory, including checks of proper functioning of all automatic shut-off mechanisms.

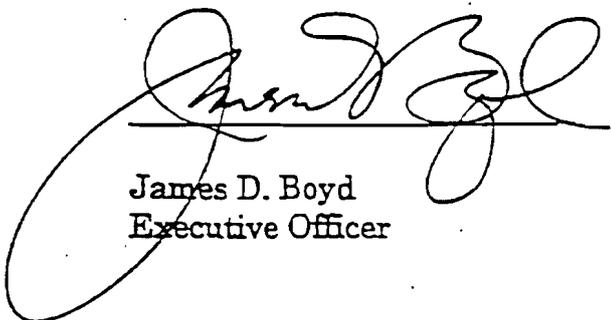
IT IS FURTHER ORDERED that the following requirements are made a condition of certification. The VaporVac system shall be installed only in facilities which are

capable of demonstrating on-going compliance with the vapor integrity requirements of the local air pollution control district ("district"). The owner or operator of the installation shall conduct, and pass, a static pressure decay test at least once in each twelve month period. The district may elect to impose more stringent test frequency requirements. The test shall be conducted in accordance with a CARB-approved or district-approved test procedure. (The most current draft procedure TP-201.3 may be used until a static pressure decay test procedure is adopted by the Board.) Alternative test procedures may be used if determined by the Executive Officer to yield comparable results and to not require components to possess greater integrity than was required for certification.

IT IS FURTHER ORDERED that, at such time as the contribution of the fugitive emissions which may result from pressurization of the storage tanks can be quantified, if such emissions are found to affect the overall effectiveness of the system, the efficiency of the system may be reevaluated and revised.

IT IS FURTHER ORDERED that the certified VaporVac system shall be performance tested during installation for ability to dispense gasoline and collect vapors without difficulty in the presence of the station manager or other responsible individual. The station manager, owner or operator shall also be provided with instructions on the proper use of the VaporVac system, its repair and maintenance, and where system replacement and system components can be readily obtained. Copies of the manufacturer's warranty for the VaporVac system shall be made available to the station manager, owner or operator.

Executed at Sacramento, California, this 10th day of February, 1994.


James D. Boyd
Executive Officer

Attachments

Executive Order G-70-150-AB

Exhibit 1

VaporVac System Equipment List

<u>Component</u>	<u>Manufacturer/Model</u>	<u>State Fire Marshal Identification Number</u>
Nozzle	OPW 11-VAI-42 (leaded)	005:008:050
	-47 (unleaded)	
	-22 (leaded, Hold Open Latch)	
	-27 (unleaded, Hold Open Latch)	
	OR	
	Any inverted coaxial nozzle CARB-certified for use with the VaporVac system.	
Inverted Coaxial Hose	Thermoid Hi-Vac	005:037:003
	Goodyear Flexsteel	005:036:002
	Dayco 7282 Superflex 2000	005:033:005
	OR	
	Any inverted coaxial hose CARB-certified for use with the VaporVac system.	
Pressure/Vacuum Valve	Any CARB-certified valve with the following pressure and vacuum settings, in inches water column (wc).	
	Pressure: three plus or minus one-half inches (3.0 ± 0.5 " water column.) Vacuum: eight plus or minus two inches (8 ± 2 " water column.)	
	<u>Note:</u> For systems installed before two CARB-certified valves which meet the above criteria are available, or within thirty days after that date, a valve with the following settings may be used for a period not to exceed four years from the date the second valve was certified: Pressure: at least one and not exceeding three and one-half inches (1 - 3.5" water column.) Vacuum: at least one-half ounce/inch ² (0.87" wc). Local districts may require valves with higher settings and/or may require earlier replacement of the 1" pressure/vacuum valves.	

Breakaway Couplings

Catlow AV200, AV200-1 005:030:005
Richards Industries VA-50, VA-51 005:031:007
OPW 66CI 005:030:005
OR

Any inverted coaxial breakaway CARB-certified for use with the VaporVac system.

Dispensers

Advantage Series B"XY"
("X" may be 0 through 9 or A,
"Y" may be 0 through 9, A through P)

**VaporVac Retrofit
Assemblies
(For the Advantage
Series and
MPD-1, 2/C, and 3)**

CV00"XY"- "ZZ"
("X" may be 0 through 3
"Y" may be 0 through 9
"Z" may be 0 through 9 and designates cosmetic
features such as color)

Executive Order G-70-150-AB

Exhibit 2

Specifications for the VaporVac Bootless Nozzle System

Figure 2-A contains a drawing of a typical installation of the VaporVac system. Figures 2-B and 2-C depict the operation and location of component parts of the VaporVac system.

Nozzles

1. Leaded and unleaded spouts are interchangeable.
2. Failure mode testing demonstrated that blockage of some of the vapor collection holes in the spout has negligible effect on the operation of the system until only four or fewer holes remain unblocked. Any OPW 11-VAI nozzle which is found to have less than four unobstructed vapor collection holes is defective and shall be immediately removed from service.

Inverted Coaxial Hoses

1. The maximum length of the hose shall be fifteen (15) feet.
2. The length of hose which may be in contact with the island and/or ground when the nozzle is properly mounted on the dispenser is limited to six inches.

Breakaway Couplings

1. Breakaway couplings are optional but, if installed, only certified breakaways may be used.

VaporVac System

1. The normal operating range of the system, as measured by air-to-liquid ratio testing, is 1.10 to 1.15 plus or minus 0.10 (1.00 to 1.25). Failure mode testing has demonstrated that potential malfunctions which do not shut down the fueling point result in an air-to-liquid ratio less than 0.9. Therefore, the air-to-liquid ratio of the system shall be not less than 0.9, measured at a flowrate of at least eight gallons per minute (8 gpm). Any fueling point not capable of demonstrating compliance with this performance standard shall be deemed defective and removed from service. For the purpose of determining non-compliance, the results of at least three air-to-liquid ratio tests shall be

averaged. The air to liquid ratio shall be determined by a CARB-approved or district-approved test procedure. (Draft procedure TP-201.5 may be used until an air to liquid ratio test procedure is adopted by the Board.) Alternative test procedures may be used if they are determined by the Executive Officer to yield comparable results.

Note: this test procedure returns air rather than vapor to the storage tank, and normally causes an increase in storage tank pressure and may cause vent emissions. This is a temporary condition due to the test is should not be considered an indication of malfunction or noncompliance.

2. The VaporVac shall be equipped with electronic safeguards designed to ensure that no fuel is dispensed unless the VaporVac system is operating properly. An error code is indicated which identifies the problem as being related to VaporVac.

The following conditions shall halt or inhibit the operation of the one side of the dispenser, with an error code indicated, while allowing the other side to operate.

- Excessive vapor pump motor current (possible causes include bearing failure, locked rotor, motor winding shorts or fluid in pump cavity for more time than required to clear a blockage).
- Failure of the vapor pump to start while fuel is being dispensed (possible causes include control electronics failure, disconnected or severed motor wiring, or locked rotor).
- Vapor pump activity during idle periods when no fuel is being dispensed.
- Maximum permissible pump speed exceeded (possible causes include loose connections in vapor path or pump malfunction).
- Disconnection or accidental swapping of Side A/B vapor pumps.

The following conditions shall shut down the entire dispenser in a manner similar to a "dead-man switch", in that VaporVac must actively prevent its activation. This is achieved by requiring the VaporVac to maintain a normally-closed switch, which will open should the VaporVac be taken "off line" via various mechanisms.

- Failure or loss of VaporVac power supply.
 - A.C. line fuse opens.
 - Cabling/wiring missing or disconnected (tampering).
3. The mass emission rate measured during the efficiency test:
0.277 pounds per 1,000 gallons.

Vapor Lines and Tank Vents

1. The pressure drop through the system, measured at a flow rate of 60 SCFH, should be as low as possible. The maximum recommended pressure drop from the dispenser riser to the storage tank is 0.02 inches water column (0.03 inches water column if the measurement includes an impact valve). The maximum allowable pressure drop through the system shall not exceed one-half inch (0.5") water column measured at a flow rate of 60 SCFH with dry Nitrogen. The pressure drop shall be measured from the dispenser riser to the storage tank with the poppeted Phase I vapor connection open and with pressure/vacuum valves installed or with the vents capped.
2. The dispenser shall be connected to the riser with either flexible or rigid material which is listed for use with gasoline. The dispenser-to-riser connection shall be installed so that any liquid in the lines will drain toward the storage tank. The internal diameter of the connector, including all fittings, shall be not less than five-eighths inch (5/8").
3. The recommended nominal inside diameter of the underground Phase II plumbing is as indicated in Figure 2-A. Smaller vapor lines are not recommended but may be used provided the pressure drop criteria specified above is met. The vapor return lines shall be manifolded as shown in Figure 2-A.

Exception: For installations with a vapor return line directly to only one tank, and for which a manifold on the tank vents will be used to provide part of the vapor return path to other tanks, the vent manifold may be used as an alternative to the underground manifold only in existing installations where the vapor piping is already installed, and shall not be used in "new" installations where vapor piping is being installed. For installations with

dedicated vapor piping directly to each tank, the vent manifold is approved for both new and existing installations and an additional tank manifold below grade is optional but not required.

4. All vapor return lines shall slope a minimum of 1/8 inch per foot. A slope of 1/4 inch or more per foot is recommended wherever feasible.
5. A pressure/vacuum (P/V) valve shall be installed on each tank vent. Vent lines may be manifolded provided the manifold is installed at a height not less than 12 feet above the driveway surface used for Phase I tank truck filling operations. At least one P/V valve shall be installed on manifolded vents. If two P/V valves are desired, they shall be installed in parallel, so that each can serve as a backup for the other if one should fail to open properly. The P/V valve shall be CARB-certified as specified in Exhibit 1. The outlets shall vent upward and be located to eliminate the possibility of vapors accumulating or traveling to a source of ignition or entering adjacent buildings.
6. All vapor return and vent piping shall be installed in accordance with the manufacturer's instructions and all applicable regulations.

Storage Tank and Phase I System

WARNING: Phase I fill caps should be opened with caution because the storage tank may be under pressure.

1. A threaded tap shall be installed at which the storage tank pressure may be monitored. The tap may be in the dispenser riser connection or on the vent line, and shall be accessible for connection to a pressure gauge. One tap is adequate for manifolded systems. The tap shall remain plugged and vapor tight except when test equipment is being connected to or removed from it. If located on the vent line, the tap shall be at least six feet (6') and not more than eight feet (8') above grade.

Note:- Frequent venting, except when caused by air ingested into the system during the performance of the air-to-liquid ratio test or Phase I activities, may indicate system malfunction. Observation of rapid pressure decay when no vehicles are fueling may indicate leaks in the system; a static pressure decay test may be used to determine compliance with the vapor integrity requirements.

2. The Phase I vapor and fill caps provide an additional seal which may prevent vapor emissions when they are in place. However, the caps must be removed during Phase I operations and may result in loss of vapor from the storage tank. Therefore, compliance with static pressure decay test criteria

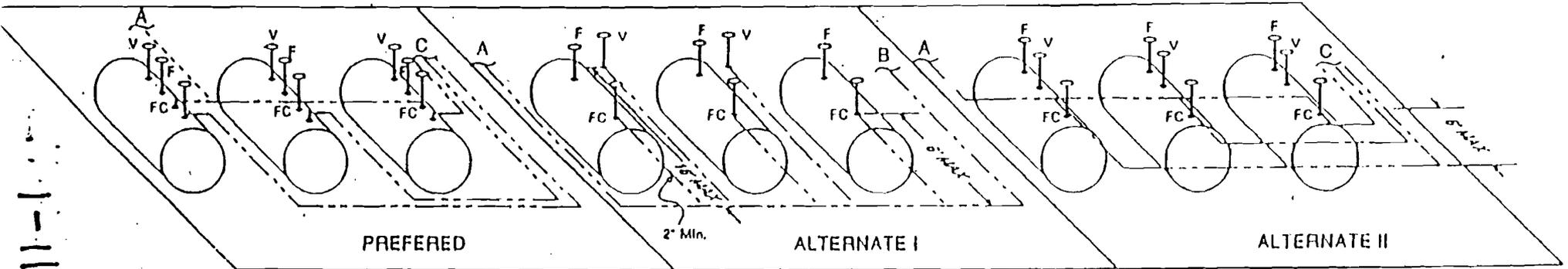
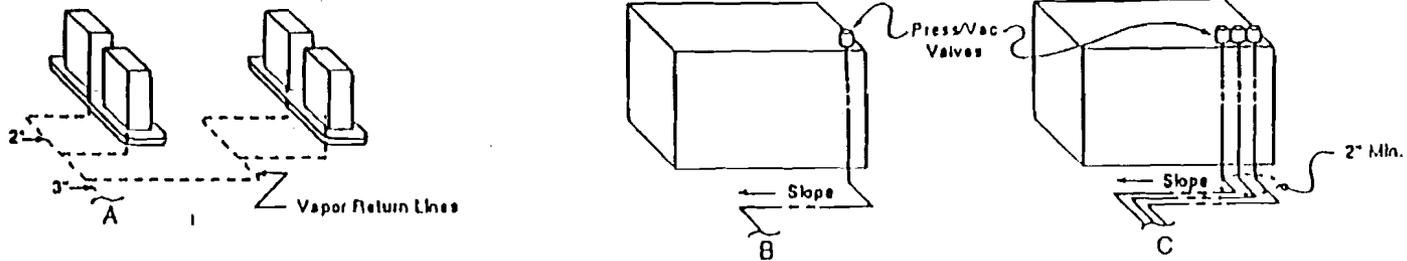
shall be demonstrated with these caps removed. Prior to pressurizing the system, verify that the liquid level in the storage tanks is at least eight inches (8") above the highest opening at the bottom of the submerged drop tube.

3. Spill containment manholes which have drain valves shall demonstrate compliance with the static pressure decay criteria with the drain valves installed as in normal operation. Manholes with cover-actuated drain valves shall demonstrate compliance with static pressure decay test criteria both with the cover open and with the cover closed.
4. Coaxial Phase I vapor recovery systems and manholes with cover-actuated drain valves certified prior to the effective date of this Order shall not be used with the VaporVac Phase II system; only CARB-certified two-point Phase I systems shall be installed. Where the VaporVac installation is made by retrofitting previously installed equipment, local districts may elect to allow the existing coaxial Phase I systems to remain in use for a specifically identified period of time provided the following conditions are met:
 - the existing coaxial Phase I system is a poppeted, CARB-certified system;
 - installation of the Phase II system requires no modification of the storage tanks and/or connections; and
 - the existing coaxial Phase I equipment is in good working order and has demonstrated compliance with the static pressure decay test criteria when tested with all fill caps removed.
5. The Phase I vapor recovery system shall be operated during product deliveries so as to minimize the loss of vapors from the facility storage tank, which may be under pressure. Provided it is not in conflict with established safety procedures, this may be accomplished in the following manner: The Phase I vapor return hose is connected to the delivery tank and to the delivery elbow before the elbow is connected to the facility storage tank. The delivery tank vapor valve is opened only after all vapor connections have been made, and is closed before disconnection of any vapor hoses. The vapor hose is disconnected from the storage tank before it is disconnected from the delivery tank.

Executive Order 1270-150-AB

Figure 2-A

Typical Installation of the
Gilbarco VaporVac Phase II Vapor Recovery System
With Two-Point Phase I System



FC = Float Check Valve

F = Fill Line

V = Stage I Vapor Recovery

Note: 1. All Vapor/Vent Lines
Are 3" Except As Noted

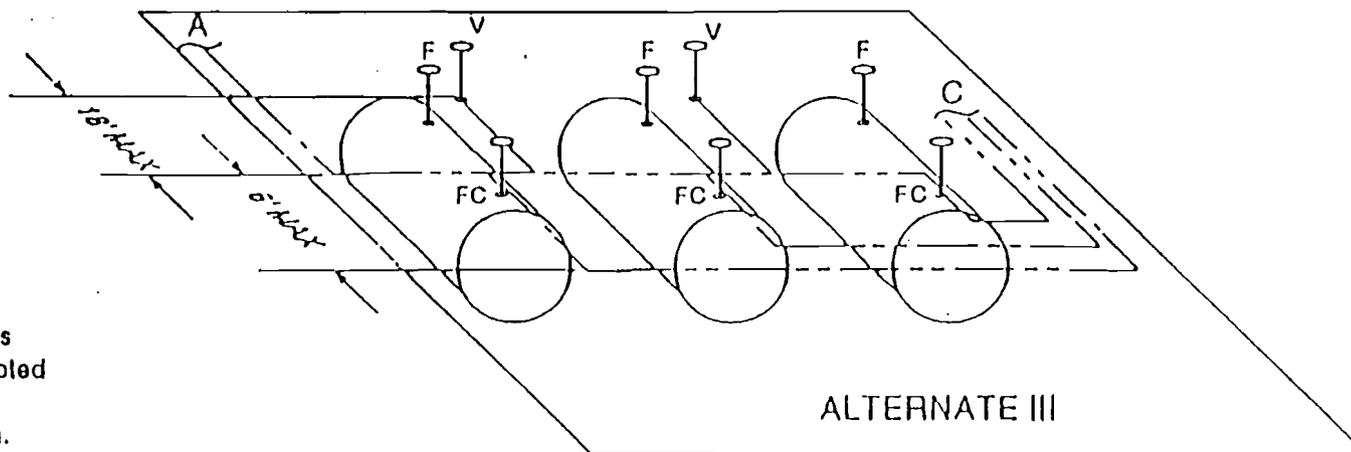
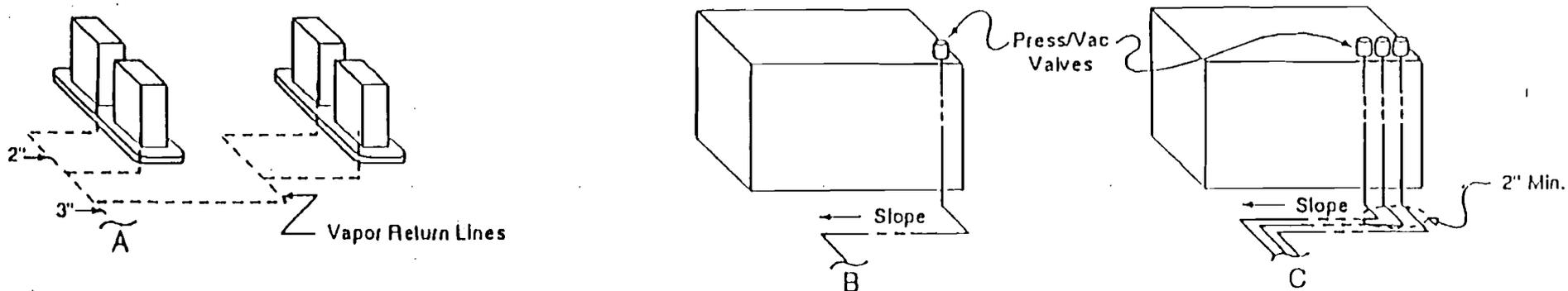
2. Slope:

1/8" Per Foot Min.

1/4" Per Foot Preferred

3. Maintain 2'0" Clearance Between Fill Line
And Stage I Vapor Return Line To Truck

Executive Order G-70-150-AB
 Figure 2-A (continued)
 Typical Installation of the
 Gilbarco VaporVac Phase II Vapor Recovery System
 With Two-Point Phase I System



FC = Float Check Valve

F = Fill Line

V = Stage I Vapor Recovery

Note: 1. All Vapor/Vent Lines
 Are 3" Except As Noted

2. Slope:
 1/8" Per Foot Min.
 1/4" Per Foot Preferred

3. Maintain 2'0" Clearance Between Fill Line
 And Stage I Vapor Return Line To Truck

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4.2.4-148

Executive Order G-70-150-AB

Figure 2-B
Gilbarco VaporVac System

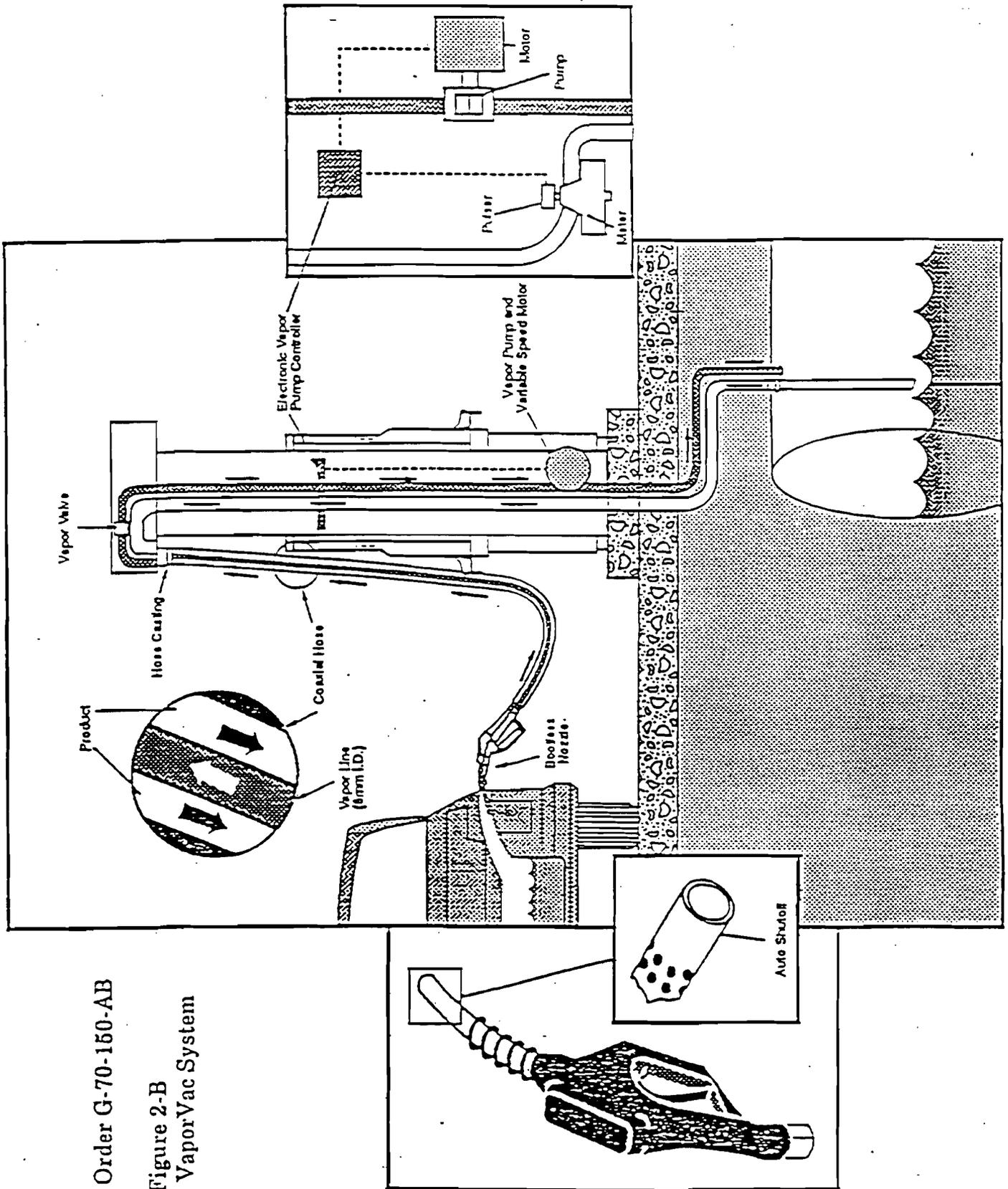
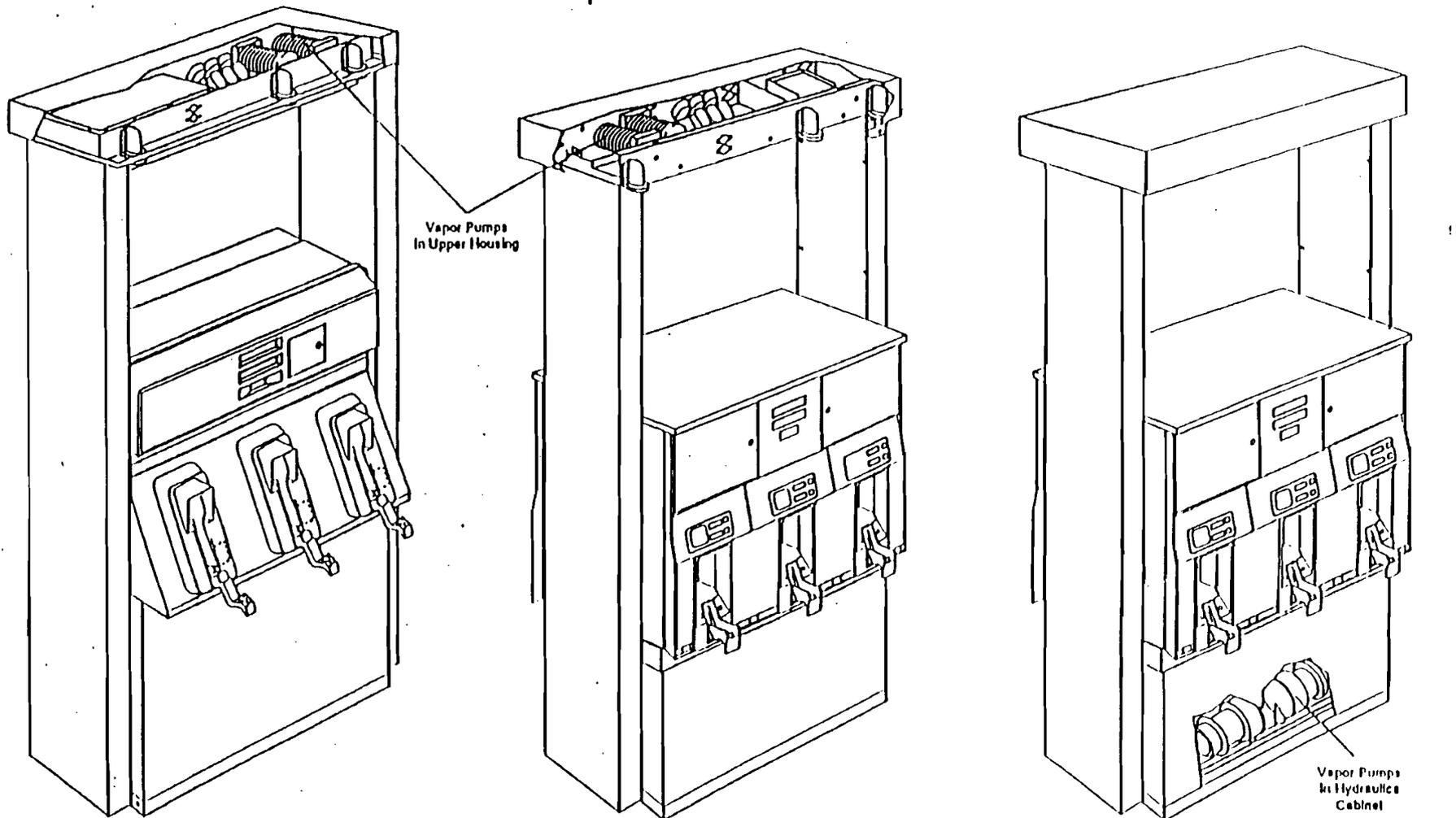


Figure 2-C

VaporVac™ Vaccum Assist Vapor Recovery Systems Component Locations



MPD® 1-2/C and 3 Dispenser
Retrofits

The Advantage™ MPD Dispenser
Retrofits

The Advantage™ MPD Dispenser
Production Models



1214

4.2.4-150

AIR RESOURCES BOARD

2020 L STREET
P.O. BOX 2815
SACRAMENTO, CA 95812



April 25, 1994

Mr. Wayne Tarpley
Engineering Manager - Dispensers
Schlumberger Technologies
1300 Bicentennial Drive
Post Office Box 280
Bonham, Texas 75418

#94-8

Dear Mr. Tarpley:

Certification of Schlumberger 4000 Series Dispensers
using Gilbarco VaporVac Vapor Assist System

You requested California Air Resources Board (CARB) certification of the Schlumberger 4000 series dispensers using the certified Gilbarco VaporVac retrofit vapor recovery assembly.

The Schlumberger 4000 series dispensers were formerly a product of Southwest Pump company which was acquired by Schlumberger in April of 1992. Recently, Schlumberger has entered into a license agreement with Gilbarco, allowing Schlumberger to install VaporVac into its 4000 series Dispenser. The 4000 series dispensers were previously CARB certified for Balance vapor recovery systems by Executive Order G-70-52-AM, Exhibit 10 (refer to approval letter #92-25). It was the task of CARB staff to test and ensure that the Schlumberger 4000 dispensers equipped with VaporVac functioned equivalent to the certified Gilbarco dispensers with respect to vapor recovery.

Schlumberger provided the necessary additional circuitry in order to ensure electronic "communication" with the 4000 series dispenser central processing unit and the Gilbarco VaporVac unit. The additional circuit boards added to ensure dispenser/VaporVac Interface consists of a VaporVac interface board installed in the dispenser canopy and a Pulsar Signal Amplifier installed in the dispenser computer area. The interfacing circuit also ensures that error signals from VaporVac are read and repeated by the Schlumberger 4000 series central processing board.

CARB staff also verified that the vapor recovery system of the Schlumberger 4000 series dispensers with Gilbarco VaporVac functioned equivalent to the certified units. CARB staff conducted air to liquid ratios of the 4000 series dispensers, using the same type of bootless nozzle and hose as the certified vapor recovery system, and found the performance

ATCH 2-1

4.2.4-151

Mr. Wayne Tarpley

-2-

April 25, 1994

of the 4000 series dispensers to meet the A/L data of 1.00 to 1.25 as specified in Executive order G-70-150-AB.

As required by the Air Resources Board certification procedures, you requested the approval of the Division of Occupational Safety and Health, the Office of the State Fire Marshal and the Department of Food and Agriculture, Division of Measurement Standards. The necessary approvals have been obtained from these agencies.

I find that the use of the Schlumberger 4000 series dispenser with Gilbarco VaporVac, when installed in accordance with the manufacturer's instructions, will not adversely affect the performance of vapor recovery systems on which they are installed. Based on my staff's analysis and testing, I also find the Schlumberger 4000 series dispenser equipped with Gilbarco VaporVac equivalent to the certified Gilbarco VaporVac bootless nozzle vapor recovery system as contained in Executive Order G-70-150-AB. Therefore, I certify the following model number matrix for the Schlumberger 4000 series dispenser:

4abc - yz - s - VG

"a" = 1 thru 4 (Number of products on the front side)

"b" = 0 thru 4 (Number of products on the back side)

"c" = 0 thru 3 (Number of hoses per side)

"y" = 2 thru 7 (Computer options)

"z" = A; D; or none (Computer options)

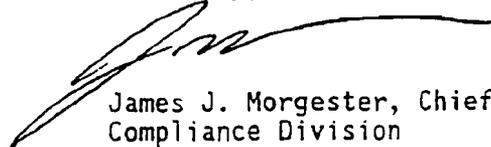
"s" = B; L; R; -B-L; -B-R; -L-R; -B-L-R; or no characters (optional features)

VG = VG (Gilbarco VaporVac vapor recovery system)

The above dispenser model matrix number will be added to the Gilbarco Executive Order G-70-150-AB at the next revision.

If you have any questions, please feel free to call Jorge Fernandez at (916) 445-0383 or Laura Sullivan McKinney at (916) 327-1525.

Sincerely,

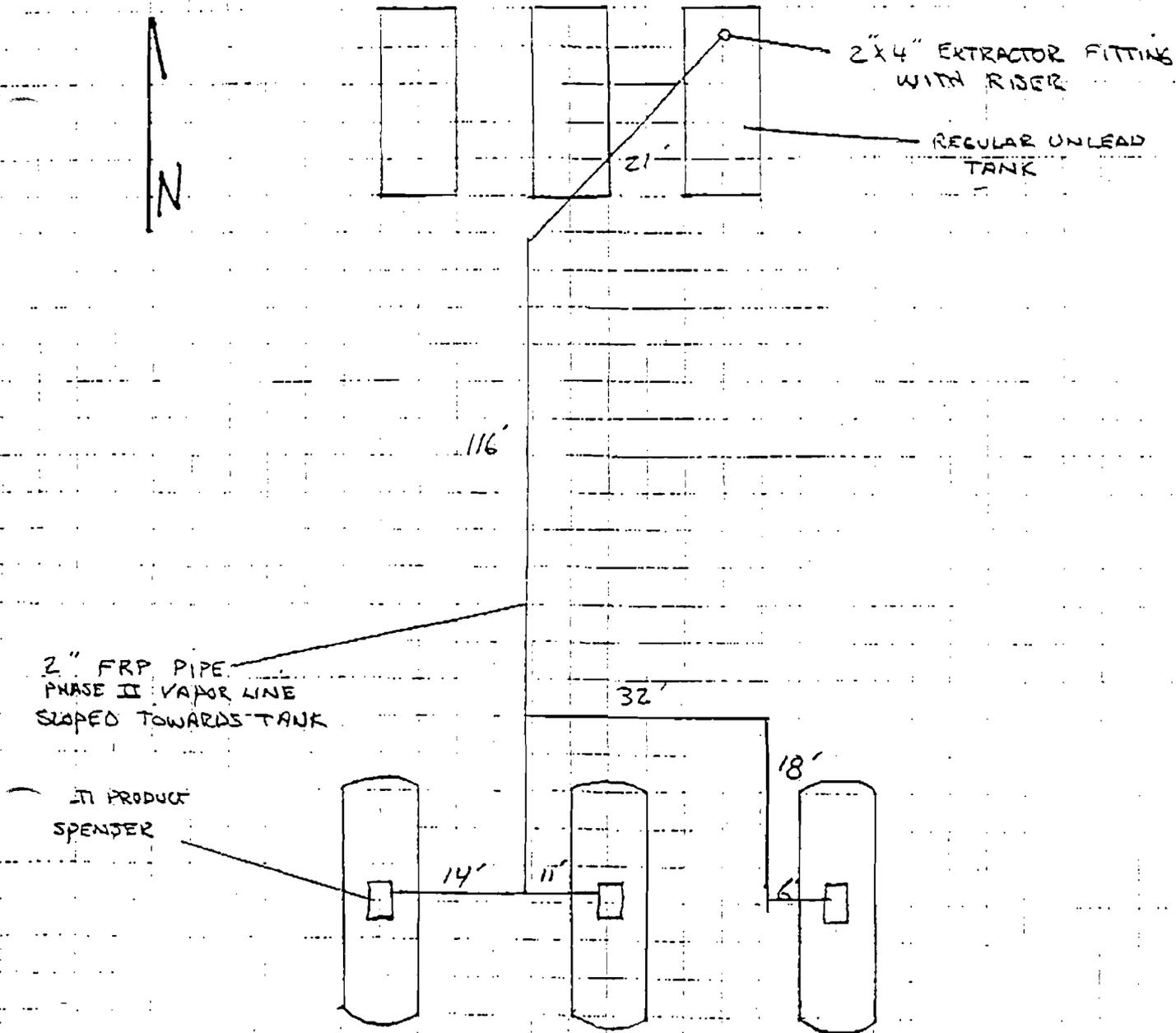


James J. Morgester, Chief
Compliance Division

cc: Vapor Recovery Technical Committee
Mr. Craig Hartsell, Gilbarco

4.2.4-152

2-2



DISPENSER ACCESSORY LIST

- OPIN. 12VAC VACUUM ASSIST. NOZZLE
- DAYCO 8' ASSIST. V.R. HOSE
- OPW 66CI ASSIST. BREAKAWAY
- DAYCO 12" ASSIST. WHIP HOSE

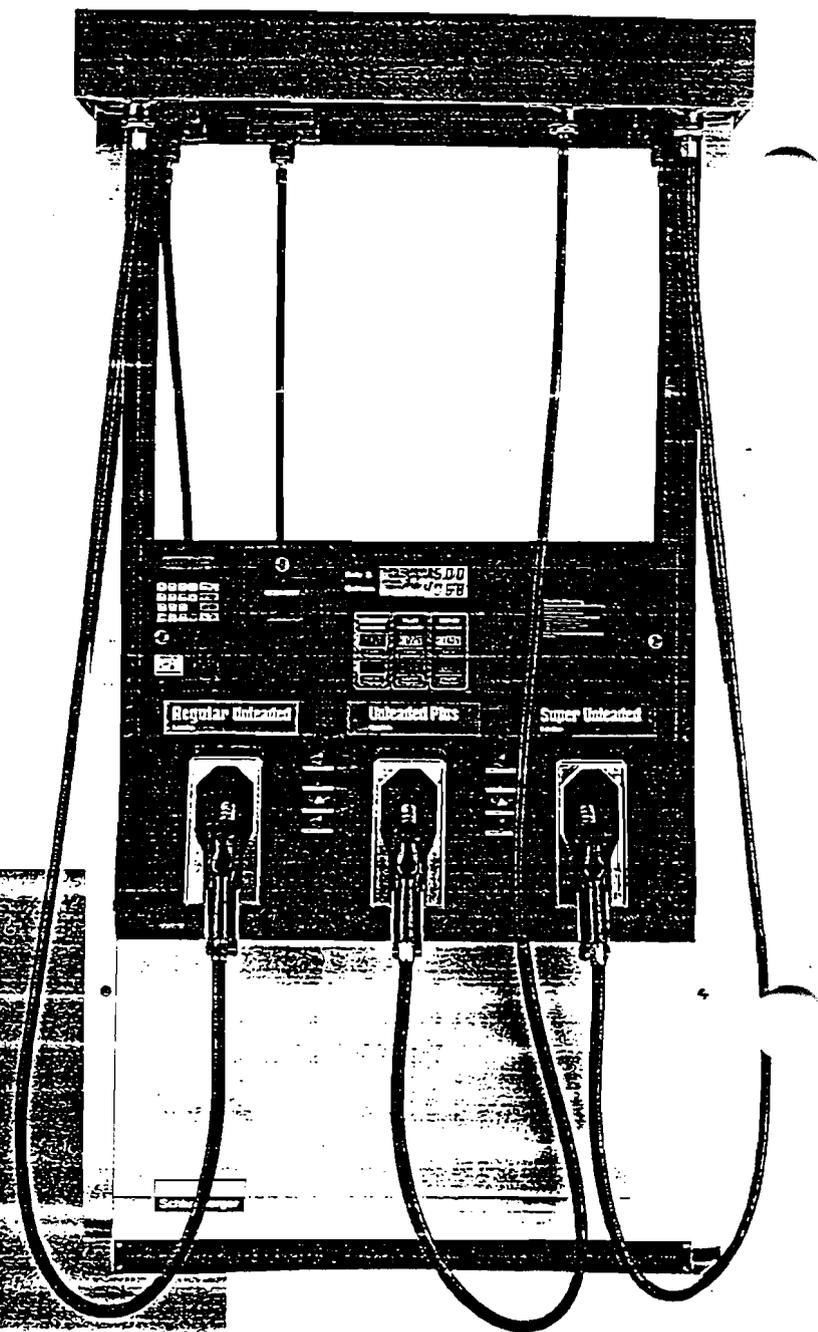
LAYOUT

4.2.4-153

ATCH 3

The 4000 Series 3-Product Dispenser

4330



The latest dispenser technology – simplified.

Schlumberger's 4300 (single-sided) and 4330 (two-sided) models dispense three products from a single fueling point to provide customer convenience and reduce space requirements. Featuring a modern, visually pleasing design, powerful electronic capabilities and economic upgradability, these dispensers offer the technology you need today and in the future. A low clearance design improves visibility of island activities for store and kiosk attendants, and customers, too. The user-friendly display panel, which prompts customers easily through the fueling process, insures simplified operations. Add to this Schlumberger's streamlined hydraulics and you have a dispenser with maximum versatility and high marketability. Schlumberger's 4300 and 4330: the latest technology, simplified.

4.2.4-154

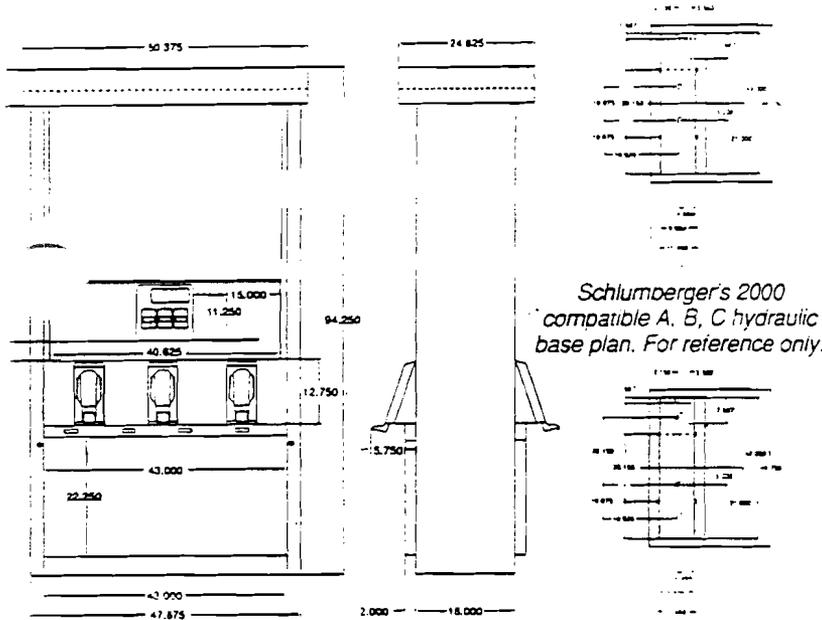
Schlumberger Technologies

ATCH 4-1

4300/4330



The 4300 and 4330's modular design allows CardScan as well as other options to be installed at the factory or at your site.



Schlumberger's 2000 compatible A, B, C hydraulic base plan. For reference only.

Schlumberger's standard hydraulic base plan. For reference only.

All dimensions are for reference only. consult factory for exact specifications

- Three products, two models
- Modular design
- Two hydraulic base plans
- Customer display panel
- Low clearance design
- Streamlined hydraulics
- Programmability
- Standard vapor ready or balance vapor recovery available
- Security
- Fuel from one side or two
- Gives the versatility of adding new capabilities as needed
- Easy upgradability from 2000 series to 4000 series
- Step-by-step prompts guide customers through fueling procedure
- Improves visibility of island activities for store and kiosk attendants
- Easier to work on, less downtime; fewer connections, environmentally safer
- Interfaces to PCs for easy PC upgradability
- Compliance flexibility
- Data storage is in non-volatile memory to maintain totals integrity during power loss
- Mechanical totalizers provide backup for electronic totals

SPECIFICATIONS

- Computer**
 - V25+ 16 bit microprocessor
 - 2 meg flash memory
 - Non-volatile memory
 - Error checking bi-directional communications
- Meter**
 - Positive displacement design
 - 2-year warranty
- Display**
 - Fluorescent Backlighting
 - 6 digit single sale/volume display
 - Step-by-step customer prompts
 - Sales information will remain visible for up to 15 minutes after power failure
- Vapor Ready**
- 8-digit back-up totalizer**
- UL approved**

AVAILABLE OPTIONS

Customer presets • In-pump card reader pay point • Balance Vapor Recovery • Vapor Prep • Fixed Blend • Customized graphics

Customer convenience and full compatibility.

With Schlumberger's 4000 Series, you can serve your customers and get them back on the road quickly. The latest dispenser technology is easy for customers to use, easy to maintain and easy to upgrade. Fast. Efficient. Fully computerized and compatible with most major POS devices, including the Micro-Max[™], Pro Series and T-2000. That's the 4300 and 4330, products backed by the resources of Schlumberger, a worldwide leader in the development of services and equipment for the petroleum industry.

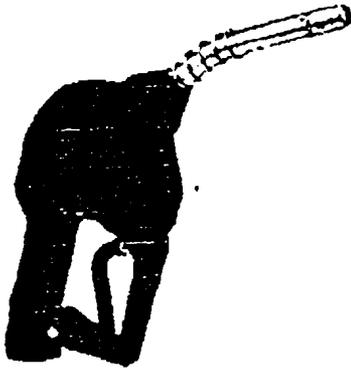
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OPW 11VAI GILBARCO VAPORVAC™ AND HASSTECH HP1000™ VACUUM-ASSIST SYSTEM NOZZLES

New on the Market

The OPW 11VAI Series bellowless nozzle operates exclusively with a vacuum assist system. This type of system creates a slight vacuum at the nozzle spout breather holes and the vehicle fillpipe. The assist system draws gasoline vapors through the coaxial spout breather holes, then back through the nozzle and hose and into the underground storage tank.

- ◆ Ideal for vapor recovery conversion areas - with only minor changes in the appearance of the nozzle, customers will appreciate the familiarity of the nozzle, resulting in no negative impact on the customer friendliness of the station.
- ◆ Dependable - based on successful OPW 11A and 11B series of nozzles.
- ◆ Low maintenance - no bellows or face seal to replace.
- ◆ Easy to install replacements kits - replacing spouts and hand insulators is quick and easy using stocked and readily available replacement kits.
- ◆ Rugged Duratuff™ lever and lever guard - stands up to self-serve abuse better and longer and won't corrode.



11VAI
VaporVac™
(GILBARCO)
HP1000™
(HASSTECH)

Features Superior Customer Convenience

Based on the design of the OPW 11B, one of the most widely accepted automatic nozzles on the market, the 11VAI Series bellowless nozzle features superior customer convenience.

- ◆ No insertion force - with no bellows, simply insert the spout into the fillpipe. No insertion force or positive seal with vehicle fill pipe is required.
- ◆ Short hand span - female consumers will appreciate the slim design which makes the nozzle easy to use.
- ◆ One hand operation - the easily seen hold-open clip can be activated with the flick of a finger. Other nozzle clips may be difficult to locate and may require the use of both hands.
- ◆ Attractive, compact design - customers will be attracted to the sleek, modern design which makes the nozzle light and easy to operate.
- ◆ Lightweight - the 11VAI weighs less than other vapor recovery nozzles on the market. Simple to install, maintain and repair.
- ◆ Exclusive self-serve prepay feature - nozzle closes automatically when line pressure is removed, and can only be opened when line pressure returns.
- ◆ Metric threaded "inverted" coaxial inlet style - the OPW 11VAI connects to the new inverted style hoses. This type of hose generally results in higher flow rates, longer usable length, and eliminates the need for hose venturi for evacuation of vapor space.

Meets Vapor Assist System Requirements

The OPW 11VAI Series meets the requirements of the Gilbarco and Hasstech vacuum-assist systems.

Listings and Certifications

All OPW vapor recovery nozzles are Underwriters Laboratories listed and CARB (California Air Resources Board) certified as a component of various vacuum-assist systems unless otherwise noted.



Note: The following patents apply to OPW 11VA Vapor Recovery Nozzles: 4,199,012, 4,351,375, and 4,453,578. Other patents pending.

*Breakaway nut
→ C3827P*

*Anchor Spring
H 8264M*

H 12176M

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