

INSTALLATION INSTRUCTIONS for HEALY SYSTEMS, INC. CLEAN AIR SEPARATOR

The Model 9961 or 9961H, Healy Systems Clean Air Separator (CAS) consists of a 400 gallon steel vapor processor vessel that contains a fuel resistant bladder to hold excess gasoline vapors that may develop in gasoline storage tanks during idle periods of gasoline dispensing facility operation. Models and Drawings with a "H" suffix apply to horizontal CAS installations and those without a "H" suffix apply to vertical CAS installations. The CAS assembly weighs approximately 800 pounds which makes it necessary to have a power assisted lifting device available at the installation site to remove the CAS from the transportation vehicle and place it on the required concrete pad (see drawing 9900-9945 or 9900-9945H). The pad (level within 1/8"/foot) is located within 100 feet to the gasoline storage tank vent lines. The pad is a requirement of this installation. **DO NOT PLACE THE CLEAN AIR SEPARATOR DIRECTLY ON THE GROUND OR ASPHALT SURFACE.** NOTICE: The installer is responsible to ensure that the installation meets the latest edition requirements of NFPA 30A, Chapter 10. No electrical connections are required. The CAS securement method shown in drawing 9900-9945 or 9900-9945H shall be approved by the local authority having jurisdiction with respect to wind and seismic loading. Installer shall not loosen, rotate or remove factory installed fittings or flange as this may damage factory seals and void warranty.

In addition to the vapor processor vessel, there is a hardware kit that contains the following:

- 4 Locking 1" NPT Ball Valves
- 4 Pad locks (keyed alike)
- 1 Breather Assembly, Healy Model 9948
- 1 Float Check Valve Assembly, Model 9466G

Reference the appropriate Healy Systems installation drawing (9900-9942, 9900-9942H, 9900-9971, 9900-9971H, 9900-9972, 9900-9972H, 9900-9973 or 9900-9973H of this manual) for placement of the above parts for the vent stack configuration required by the local Authority Having Jurisdiction (AHJ) for the Underground Storage Tank (UST) system. **A flexible connection between the Clean Air Separator and the vent line(s) is allowable if required by the local Authority Having Jurisdiction (AHJ) to meet seismic requirements. Should the flex connection be installed such that it is not supported, the slope of the flex connection shall be greater than the 1/8"/foot slope required for the rest of the one inch galvanized piping.** The local contractor is responsible to provide all necessary, galvanized piping, non-hardening, UL classified pipe joint compound and plumbing fittings. Additional Pressure/Vacuum (P/V) vent valves to complete installation are not included in the hardware kit. Healy is not responsible for the warranty of any other P/V vent valve purchased to complete installation.

The CAS arrives at the site assembled and tested. All plumbing shall be done using 1" galvanized steel pipe (Schedule 40) and approved nipples, as called out in the installation drawing appropriate for the site installation. Mounting hardware shall be galvanized or stainless steel. Careful attention must be paid to the installation drawing appropriate for the site installation to assure proper operation of the bladder system. Do not inflate the bladder assembly after installation.

It is important that the CAS be secured to the concrete pad as shown in drawing 9900-9945 or 9900-9945H of this manual to prevent any unintentional repositioning of the CAS as the connecting plumbing to the vent system is accomplished.

Franklin Fueling Systems

3760 Marsh Road

Madison, Wisconsin 53718 USA

ARB Approved Installation, Operation and Maintenance Manual

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OPERATION AND PURGING

NORMAL OPERATION:

- ❑ There are four ball valves on the CAS. Each ball valve is to be installed so as to allow opening and closing with nothing obstructing the full range (90°) of movement. In normal operation, only the valve (A) at the top of the CAS shall be open – the other three valves (B, C and D) shall be closed. All four valves shall be locked in the above positions. The two plugs (E and F) should be installed using a non-hardening, UL classified pipe joint compound and tightened to 60 ft-lbs.

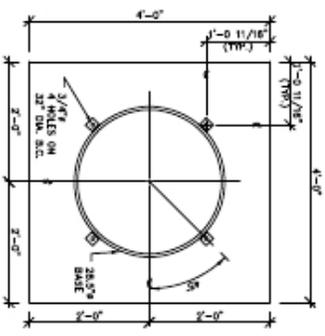
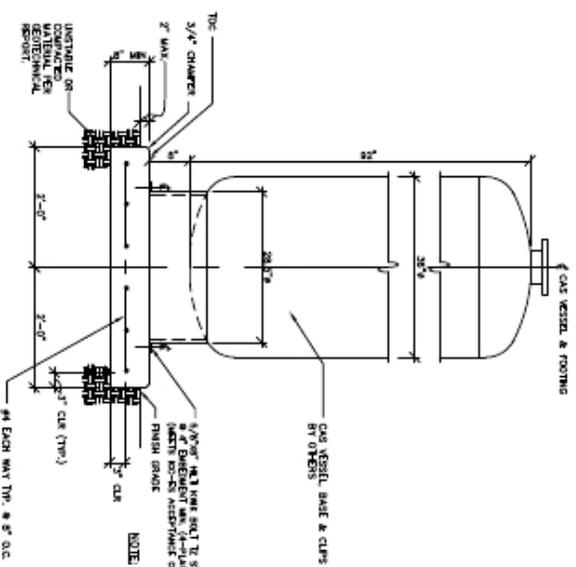
DRAINING THE BLADDER:

- ❑ Any liquid coming over from the vent system would have collected above the valve (A) in the riser pipe before going into the bladder. An inspection of the need to drain the bladder is easily made by removing the plug (E) at the tee on the bottom plumbing of the CAS. Before removing this plug, open the valve (B) above the tee to release any liquid into the piping below. Wait approximately 30 seconds and then close the valve (B). Now, remove the plug (E) at the tee on the bottom plumbing of the CAS – be sure to have a container suitable for gasoline available to catch fluid. If liquid in excess of 16 ounces (473 ml) drains out, the bladder should also be drained.
- ❑ Should it be necessary to drain the bladder:
 1. Close the upper ball valve (A) (usually open) leading to the gasoline storage tank vent lines.
 2. Open the valve (C) that goes to the internal syphon tube. Be sure the other three ball valves (A, B and D) that connect to the vent lines and CAS are closed.
 3. Remove the plug (E) from the bottom tee and connect an explosion proof evacuation pump capable of handling liquid. Have a liquid tight, container suitable for gasoline positioned to receive any fluid that may exit the system and start the pump. If no liquid returns within 30 seconds, the bladder is dry – discontinue pumping, remove the pump, replace the plug (E) and return the ball valves to their normal, locked, positions.

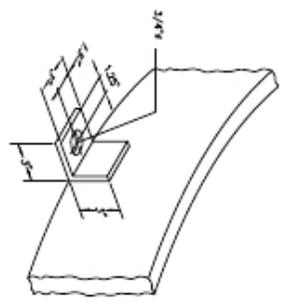
DRAINING THE CAS:

- ❑ Should it be necessary to drain the CAS (between the bladder and steel wall):
 1. Close the ball valve at the top (A) of the CAS and also the two valves (B and C) on the vertical risers.
 2. Remove the plug (E) in the bottom tee and place a metal container below the pipe opening.
- ❑ Carefully open the ball valve (D) at the bottom of the CAS – observe that the container that is being drained into does not overflow – empty container as required until fluid no longer comes from the pipe when the valve is open.
 1. Close the ball valve (D) and replace the plug (E) into the tee.
 2. Return all ball valves to their normal locked positions.

DRW NO: 9900-9945



NOTE: WHERE ICC-ES ACCEPTANCE CRITERIA IS NOT REQUIRED, 5/8\"/>



CRITERIA
 SOIL BEARING 1000 psf
 BASIC WIND SPEED 100mph
 DESIGN S_w = 25
 MIN. CONCRETE COMP. STRENGTH f'_c = 2500 psi
 MIN. REINF. YIELD STRENGTH f_y = 40000 psi

The contractor shall verify that the information provided herein is accurate and complete. The contractor shall be responsible for the information provided herein. The contractor shall be responsible for the information provided herein. The contractor shall be responsible for the information provided herein.

MATERIAL:

DO NOT SCALE DRAWING	XX ± 1/32"
STANDARD NOT DIMENSIONS (UNLESS OTHERWISE SPECIFIED)	XXX ± 1.0005
SPECIAL DIST.	ANGULAR ± 1/2"

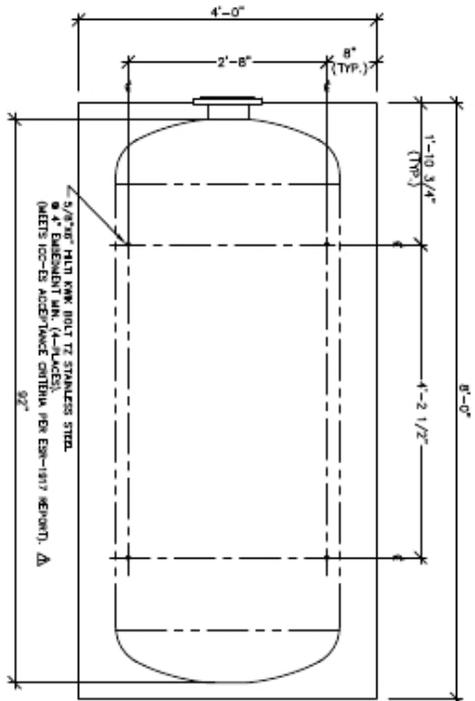
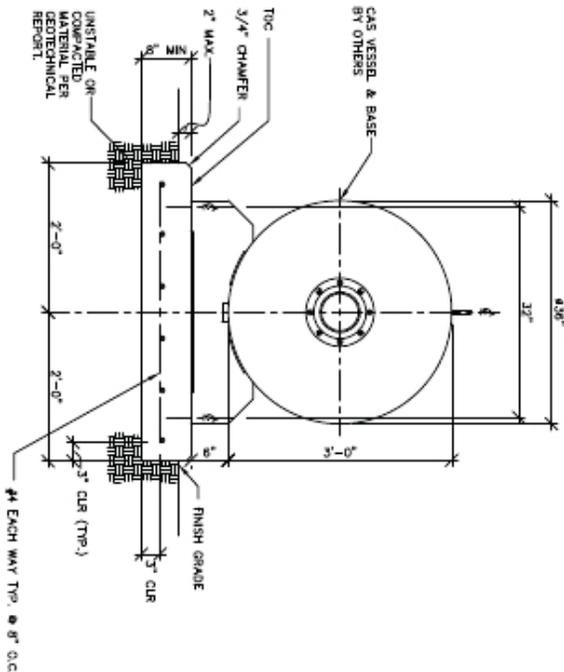
TITLE		DRAWN		DATE	
CLEAN AIR SEPARATOR MOUNTING SLAB DETAILS		JWH		07/21/02	
SCALE		SHEET		OF	
1/8		1		1	

7	REVISIONS	DATE
6	BY: JWH	12/21/07

Franklin Fueling Systems

Model: 9-2018

DRW NO: 9900-9945H



SECTION @ CAS SLAB

NOTE:

▲ WHERE ICC-ES ACCEPTANCE CRITERIA IS NOT REQUIRED, 5/8" X 6" HIGH TENSILE BOLT 3 @ 4" EMBEDMENT MIN. CAN BE USED (REF ESR-1285 REPORT, ISSUED 09/01/04).

CRITERIA
 SOIL BEARING 1000 psf
 BASIC WIND SPEED 100mph
 SEISMIC $S_a=2g$
 $S_b=1g$
 MIN. CONCRETE COMP STRENGTH, $f'_c = 2500$ psi
 MIN. REINF. YIELD STRENGTH, $f_y = 40000$ psi

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MATERIAL:

DO NOT SCALE DRAWING	XX ± .02
STANDARD INCH TOLERANCES (UNLESS OTHERWISE SPECIFIED)	.XXX ± .005
SPECIAL DIST:	ANGULAR ± 1/2°

REV	DESCRIPTION	ECN NO	BY	DATE
5	ADDED CAS DIMENSIONS, REVISED CRITERIA LIST	-	TF	01/02/08
4	KG-TZ SS WAS KBA, ESR-1917 WAS ESR-1285, ADDED NOTE 1	-	TF	12/21/07

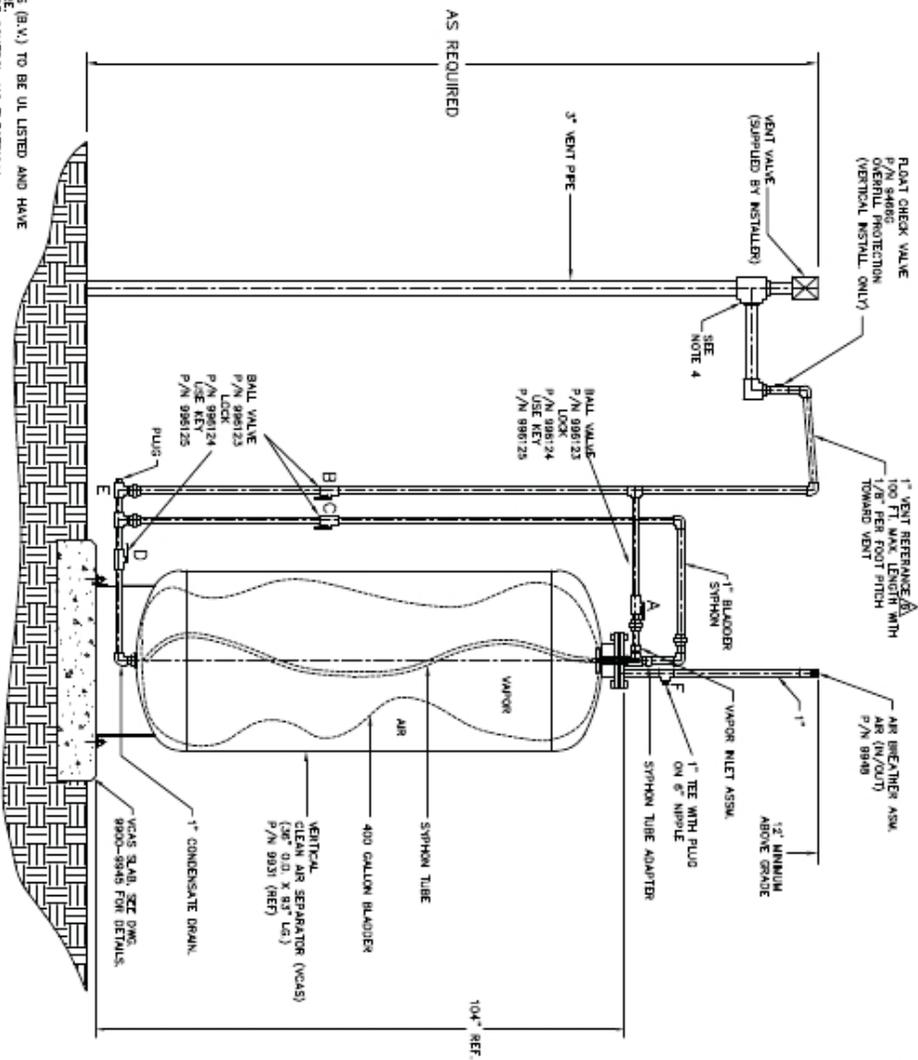


Franklin Fueling Systems
 Madison, WI 53718

TITLE:		CLEAN AIR SEPARATOR HORIZONTAL MOUNTING SLAB DETAILS	
DRAWN:	DATE:	DRW NO:	SUFFIX:
TF	05/22/07	9900-9945	H
APPROV:	DATE:	SCALE:	SHEET
MDB	06/05/07	3/4" = 1'	1 OF 1

IRM NR 9900-9971

NOTICE
 DRAWINGS ARE TWO DIMENSIONAL REPRESENTATION OF TYPICAL CLEAN AIR SEPARATOR (CAS) INSTALLATION. ACTUAL CAS INSTALLATIONS WILL VARY SLIGHTLY FROM THE REPRESENTATION SHOWN.
 INSTALLER SHALL NOT LOOSEN, ROTATE OR REMOVE FACTORY INSTALLED FITTINGS OR FLANGE AS THIS MAY DAMAGE FACTORY SEALS AND VOID WARRANTY.



- NOTE:**
- 1 - ALL BALL VALVES (B.V.) TO BE UL LISTED AND HAVE PASSIVE FIRE PROTECTION.
 - 2 - PASSIVE PRESSURE CONTROL—NO ELECTRICAL POWER REQUIRED.
 - 3 - AIR BREAKER MUST BE INSTALLED AT A MINIMUM HEIGHT OF 12" ABOVE GRADE.
 - 4 - VENT LINE IN CAN BE INSTALLED ANYWHERE PROVIDED THE REST OF THE LINE PROVIDED THAT PIPE SLOPE IS MAINTAINED AND THE BALL VALVE IS IN THE CORRECT VERTICAL INSTALLATION.
 - 5 - ONLY GALVANIZED PIPE IS TO BE USED FOR PIPING CONNECTIONS.
- A** - A FLEXIBLE CONNECTION BETWEEN THE CLEAN AIR SEPARATOR AND THE VENT LINE(S) IS ALLOWABLE PROVIDED THE CONNECTION IS MADE WITH THE CORRECT FITTING AND THE CONNECTION BE INSTALLED SUCH THAT IT IS NOT SUPPORTED. THE SLOPE OF THE FLEX CONNECTION SHALL BE GREATER THAN THE 1/8" PER FOOT SLOPE REQUIRED FOR THE REST OF THE ONE INCH GALVANIZED PIPING.

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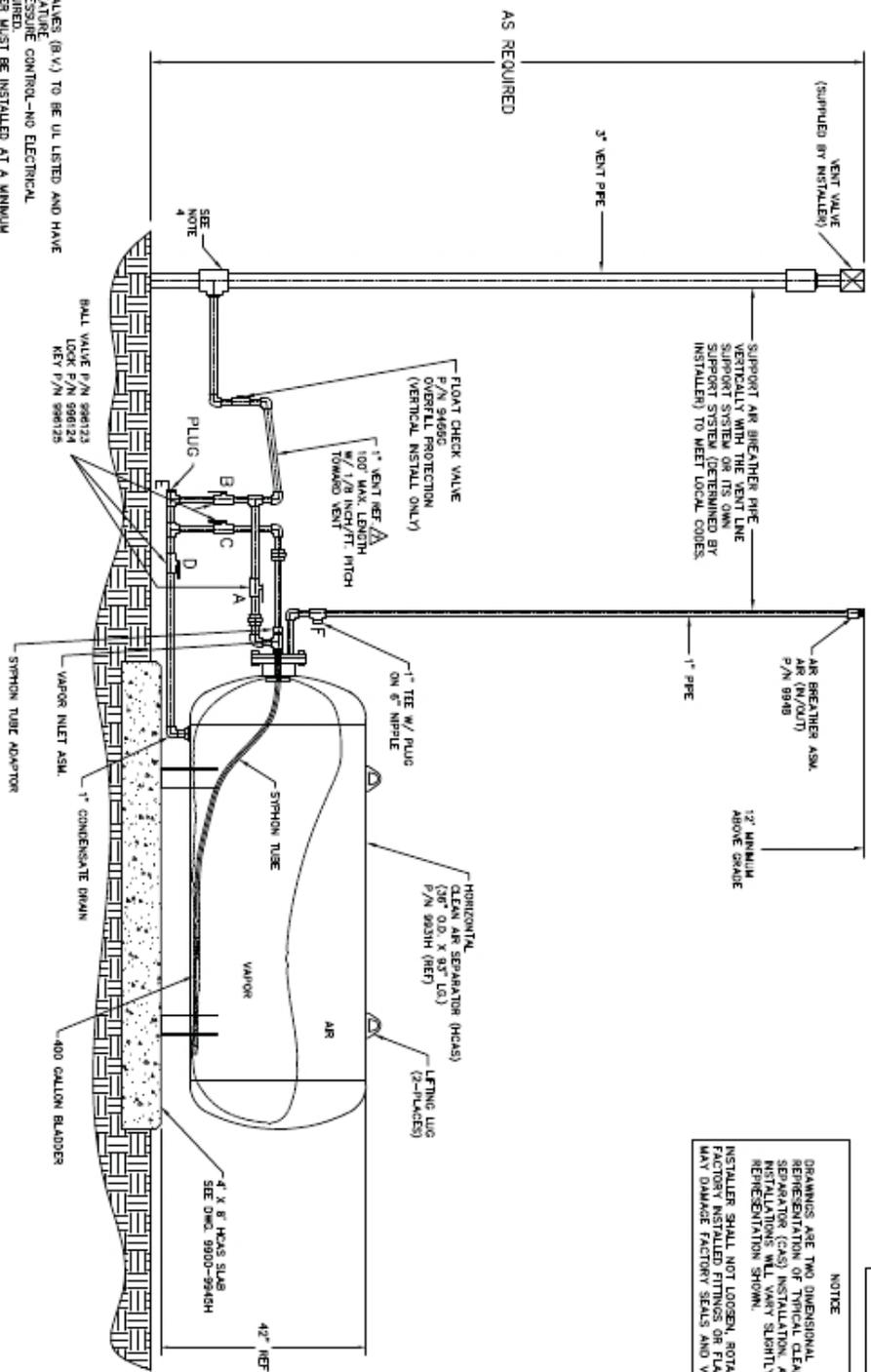
MATERIAL	
30 307 SAE STEEL	316 3.032
STAINLESS STEEL TUBING (SCHED 40S)	304 4.005
WELDED 1/2"	316 2.1/2"
SPECIAL LIFT	

REV	DESCRIPTION	DATE	BY	CHKD
1	ISSUED NOTE 1	05/09/07	ADG	RLT

Franklin Fueling Systems 9900-9971 SHEET 1 OF 1	CLEAN AIR SEPARATOR VERTICAL INSTALLATION (1 VENT) 05/14/02 9900-9971
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DMR NO. 9900-9971H

NOTICE
 DRAWINGS ARE TWO DIMENSIONAL REPRESENTATION OF TYPICAL CLEAN AIR SEPARATOR (CAS) INSTALLATION. ACTUAL CAS INSTALLATIONS WILL VARY SLIGHTLY FROM THE REPRESENTATION SHOWN.
 INSTALLER SHALL NOT LOOSEN, ROTATE OR REMOVE FACTORY INSTALLED FITTINGS OR FLANGES AS THIS MAY DAMAGE FACTORY SEALS AND VOID WARRANTY.



- NOTE
- 1 - ALL BALL VALVES (B.V.) TO BE UL LISTED AND HAVE 1/2\"/>

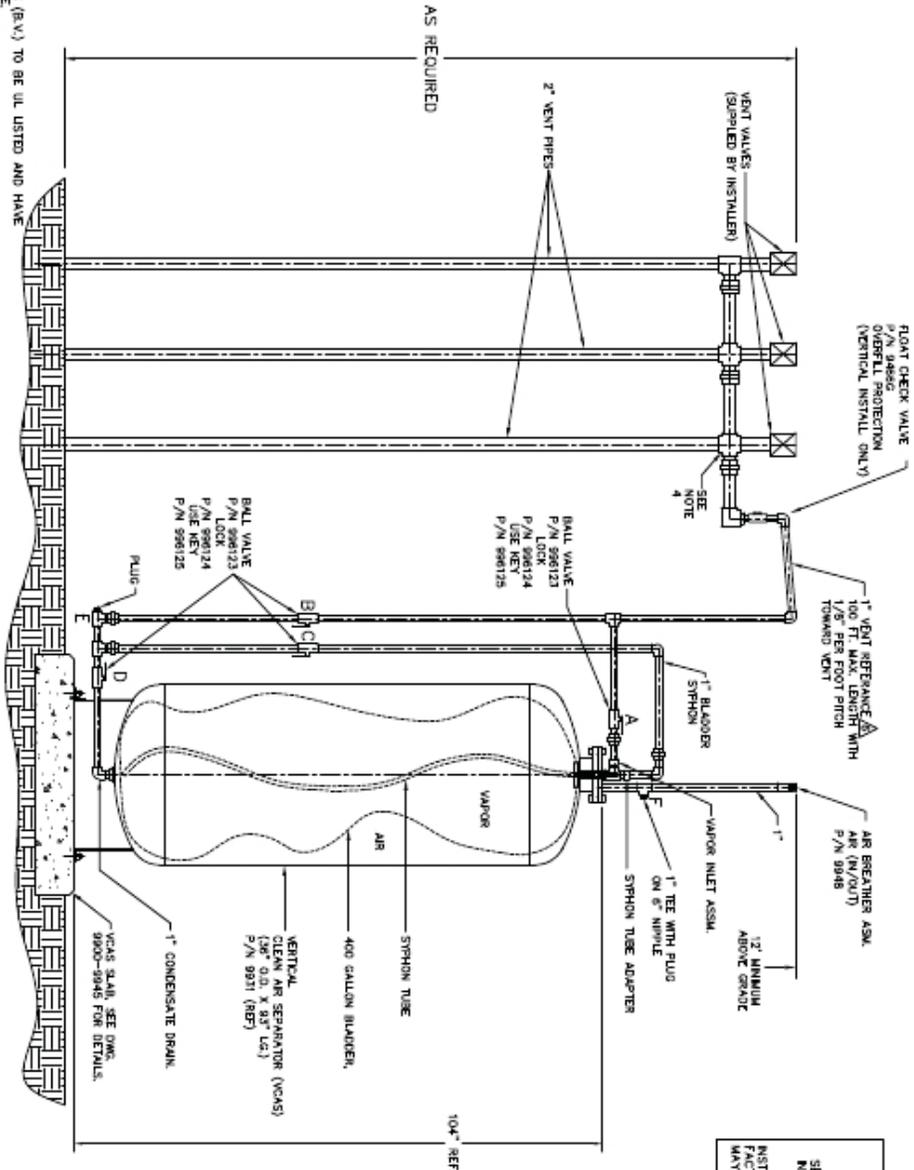
By a manufacturer, qualified installer, or other authorized person. The use of this drawing for any other purpose without the written consent of the manufacturer is prohibited. The manufacturer shall not be held responsible for any damage or injury resulting from the use of this drawing.

REV	DESCRIPTION	DATE
1	ISSUED FOR CONSTRUCTION	05/22/07
2	REVISED	05/22/07

7	4800 WTS 1	40166	15	05/22/08
REV	DESCRIPTION	EDN NO	BT	DATE
Franklin Fueling Systems				
CLEAN AIR SEPARATOR HORIZONTAL INSTALLATION (VENT VALVE)				
DATE	05/22/07	DMR NO.	9900-9971	SCALE
BY		DATE		
APP'D		DATE		

IRM NR 9900-9973

NOTICE
 DRAWINGS ARE TWO DIMENSIONAL REPRESENTATION OF TYPICAL CLEAN AIR SEPARATOR (CAS) INSTALLATION. ACTUAL CAS INSTALLATIONS WILL VARY SLIGHTLY FROM THE REPRESENTATION SHOWN.
 INSTALLER SHALL NOT LOOSEN, ROTATE OR REMOVE FACTORY INSTALLED FITTINGS OR FLANGES AS THIS MAY DAMAGE FACTORY SEALS AND VOID WARRANTY.



- NOTE:**
- 1 - ALL BALL VALVES (B.V.) TO BE UL LISTED AND HAVE PADLOCK FEATURE.
 - 2 - PASSIVE PRESSURE CONTROL-AND ELECTRICAL POWER REQUIRED.
 - 3 - AIR BREAKERS MUST BE INSTALLED AT A MINIMUM HEIGHT OF 12 IN ABOVE THE SEPARATOR.
 - 4 - AIR BREAKERS MUST BE INSTALLED ANYWHERE ALONG THE VENT STACK LINE PROVIDED THAT PIPE SLOPE IS MAINTAINED AND THE CHECK VALVE IS IN THE CORRECT VERTICAL INSTALLATION.
 - 5 - ONLY GALVANIZED PIPE IS TO BE USED FOR PIPING CONNECTION BETWEEN THE CLEAN AIR SEPARATOR AND THE VENT LINES. IS ALLOWABLE IF REQUIRED BY THE LOCAL AUTHORITY HAVING JURISDICTION (LAA) TO MEET SEISMIC REQUIREMENTS. SHOULD THE FLEX CONNECTION BE INSTALLED SUCH THAT IT IS NOT SUPPORTED, THE SLOPE OF THE FLEX CONNECTION SHALL BE GREATER THAN THE 1/8" PER FOOT SLOPE REQUIRED FOR THE REST OF THE ONE INCH GALVANIZED PIPING.

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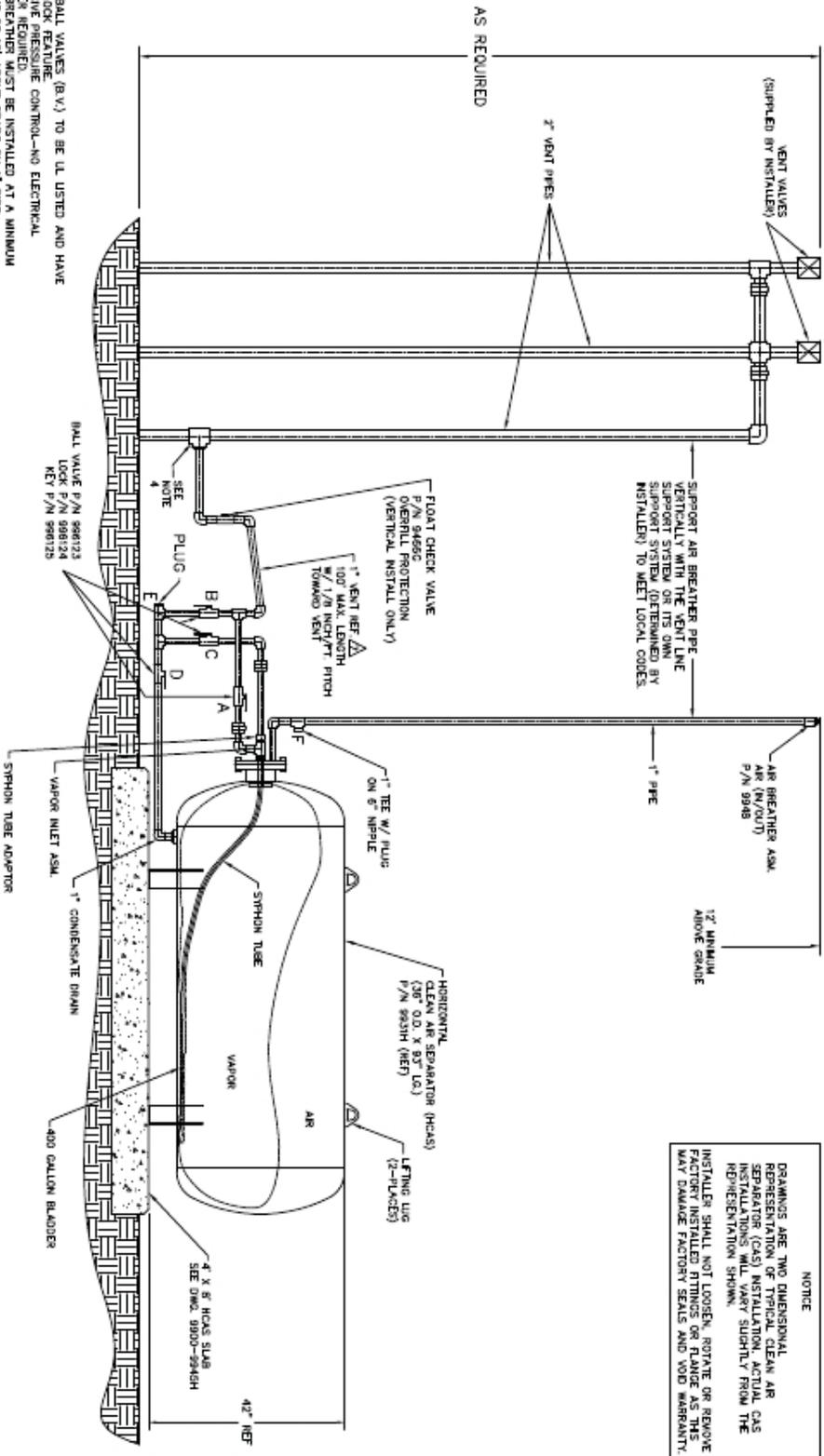
MATERIAL	
30 307 SIZED DRAWING	30 3 002
FRANKLIN PART NUMBERS (CHECK FRANKLIN DRAWING)	307 4 005
SCALE	AS SHOWN 3/1/2"
SIGNAL LEVEL	

REV	DATE	DESCRIPTION	BY	CHKD
0	05/21/02	ISSUE		
1	09/09/07	ASU HIT ISSUE		

TITLE: CLEAN AIR SEPARATOR VERTICAL INSTALLATION (3 VENT)
 DRAWING NO: 9900-9973
 SHEET 1 OF 1

DMR NR: 9900-9972H

NOTICE
 DRAWINGS ARE TWO DIMENSIONAL REPRESENTATION OF TYPICAL CLEAN AIR SEPARATOR (CAS) INSTALLATION. ACTUAL CAS INSTALLATIONS WILL VARY SLIGHTLY FROM THE REPRESENTATION SHOWN.
 INSTALLER SHALL NOT LOOSEN, ROTATE OR REMOVE FACTORY INSTALLED FITTINGS OR FLANGE AS THIS MAY DAMAGE FACTORY SEALS AND VOID WARRANTY.



- NOTE**
- 1 - ALL BALL VALVES (B.V.) TO BE UL LISTED AND HAVE PROTECTIVE FEATURE.
 - 2 - AIR BREAKER MUST BE INSTALLED AT A MINIMUM HEIGHT OF 12" ABOVE GRADE ON 1" PIPE.
 - 3 - VENT LINE TIE IN CAN BE INSTALLED ANYWHERE ALONG THE VENT STACK LINE PROVIDED THAT PIPE SLOPE IS MAINTAINED AND THE CHECK VALVE IS IN THE CORRECT POSITION.
 - 4 - ONLY GALVANIZED PIPE IS TO BE USED FOR PIPING CONNECTIONS.
 - 5 - HOAS TO SLOPE SLIGHTLY TOWARD CONDENSATE DRAIN. PITCH SLAB WITHIN 1/8" INCH/FOOT TOWARD CONDENSATE DRAIN END OR SHIM HOAS FOR PROPER CONNECTIONS.
 - 6 - VESSEL DRAINAGE CONNECTION BETWEEN THE CLEAN AIR SEPARATOR AND THE VENT LINES, IF ALLOWABLE AS REQUIRED BY THE LOCAL AUTHORITY HAVING JURISDICTION (LHA), TO MEET SEISMIC REQUIREMENTS, SHOULD THE FLEX CONNECTION BE INSTALLED SUCH THAT IT IS NOT SUPPORTED. THE SLOPE OF THE FLEX CONNECTION SHALL BE GREATER THAN THE 1/8" PER FOOT SLOPE REQUIRED FOR THE REST OF THE ONE INCH GALVANIZED PIPING.

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REV	DATE	DESCRIPTION
1	05/22/07	ISSUE
2	09/05/07	REVISED

REV	DATE	DESCRIPTION
1	05/22/07	ISSUE
2	09/05/07	REVISED

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1	05/22/07	ISSUE
2	09/05/07	REVISED

