ISO Registered Company

Model 2199

Pressure Vacuum Thief Hatch & Combo. Gauge Hatch

SECTION I

I. DESIGN AND FUNCTION

The Model 2199 is an inexpensive, multi-function unit. This low-profile hatch is designed to provide easy access into storage tanks for gauge reading and obtaining samples. It can also provide additional pressure relief as a supplement for normal venting. Furthermore, this unit is designed to be used as a spring operated conservation vent and tank hatch with a superior vapor-tight seal.

SECTION II

II. INSPECTION AND STORAGE:

The thief/gauge hatch is carefully packaged to prevent damage or contamination during shipping. Inspect the equipment when it is received and report any damage to the carrier immediately. The thief/gauge hatch should be stored with all protective covers in place.

SECTION III

III. INSTALLATION

⚠ WARNING

The gauge hatch must be installed in a horizontal position. The tank nozzle on which the hatch is mounted should have the same nominal diameter as the gauge hatch. It is recommended that the tank nozzle flange face be within 1 degree of horizontal.

The Model 2199 Gauge Hatch is designed with ANSI 150# FF or API 12D/12F/12P 8" bolt pattern.

Before installing the 2199 Gauge Hatch, remove all packing materials.

Inspect the gasket seating surface of the tank nozzle flange. It must be clean, free of scratches, corrosion, tool marks and flat.

Gauge hatches are furnished with flat faced flanges. It is recommended that they be installed on mating flat face flanges with a full faced gasket. If the flat face of the hatch is sealing against a raised face steel flange, a spacer or filler ring must be used to fill the annular space of the raised face steel flange.

Make sure the gasket is suitable for the application and is in good condition. For full face gaskets, we recommend the use of an 1/8-inch rubber gasket.

Center the gasket within the bolt circle of the tank flange and carefully set the gauge hatch on the flange nozzle and align the bolt holes.

All stud threads must be lubricated to obtain proper torque results. A washer should be used under each stud nut.

Install the studs, washers and nuts and tighten nuts hand-tight. Check proper alignment of flange faces. Misalignment of flange faces will cause bending stresses at the flange and flange joint and damage may result. Correct any misalignment prior to applying torque to nuts. Recommended torque is approximately 5 ft.lbs with the use of lockwashers. Check torque after 5-10 minutes to ensure relaxation has not occurred.

SECTION IV

IV. MAINTENANCE -

Maintenance procedures hereinafter are based upon removal of the gauge hatch from the tank flange.

Owner should refer to owner's procedures for removal, handling and cleaning of nonreusable parts; i.e. gaskets, suitable solvents, ect.

Cashco recommends a scheduled maintenance be performed every three months and more frequently in adverse environmental conditions; such as, corrosive, dusty or freezing atmospheres.

⚠ CAUTION

DO NOT attempt to remove a locked gauge hatch from a tank or process vessel without first bleeding all pressure from the system.

⚠ CAUTION

SPRING UNDER COMPRESSION. Exercise caution during disassembly.

A. Vacuum O-ring and Vacuum Spring Replacement:

Note: Applies to Pressure - Vacuum units only.

1. Remove cap (20) by rotating CCW.
2. Rotate nut (13) CCW to remove nut (13), washer (22), and vacuum spring (21).
3. Vacuum pallet assembly (18) will then slide through the threaded guide (12).
4. Remove vacuum o-ring (19). Examine groove in vacuum pallet (18), clear debris and any imperfections that may damage new o-ring.
5. Replace with new vacuum o-ring (19). ***NOTE:*** *Lightly condition the new o-ring before replacing. Prevent excessive grease build up.*
6. Slide shoulder bolt (4) up through center of the threaded guide (12).
7. Replace vacuum spring (21). Reinstall washer (22), and nut (13). Torque nut to 4 ft-lbs.
8. Lock with closing cap (20). Tighten hand tight and lock with thread sealant. Reinstall set screw (30). Apply Loctite to threads.

This maintenance is to assure proper sealing. Inspect the pressure o-ring (2) and vacuum o-ring (19) for any debris, excess grease or contaminants and scratches on the mating surface.

Annually replace the pressure o-ring (2). Refer to figures 1 & 2.

Annually replace the pressure o-ring (2), vacuum o-ring (19) and vacuum spring (21). Refer to figure 3.

B. Pressure O-ring Replacement:

1. Remove knob (8) by rotating CCW.
2. Grab the arm sub assembly (10) with hand. Lift arm/vacuum pallet (10,18) sub-assembly up and turn over so the vacuum pallet (18) (or pressure pallet (3) on pressure or gauge hatch only units) is upwards.
3. Remove pressure o-ring (2) from groove in flange base (1). Examine groove in base (1), clear debris and any imperfections that could cause damage to new o-ring.
4. Replace with new pressure o-ring (2). ***NOTE:*** *Lightly condition the new o-ring before replacing. Prevent excessive grease build up.*
5. Flip arm/pallet (10,3) sub-assembly over and re-align on to the flange base (1).
6. Engage eye bolt (16) in the groove in hinge arm (10) and secure in place with knob (8).

C. Limit Switch Replacement:

1. Back out two small screws (33) holding switch (32) to main valve.
2. Ascertain that wire lead is not entangled around parts of arm assembly (10) before pulling switch (32) away from valve.
3. Replace with new limit switch (32). Reinstall two small screws(33).
   NOTE: *Consult factory for customer specified switches.*
4. Return to Section III for Installation.

SECTION V

V. ORDERING INFORMATION
NEW REPLACEMENT UNIT vs PARTS "KIT" FOR FIELD REPAIR

To obtain a quotation or place an order, please retrieve the Serial Number and Product Code that was stamped on the metal name plate and attached to the unit. This information can also be found on the Bill of Material ("BOM"), a parts list that was provided when unit was originally shipped. (Serial Number typically 6 digits).

NEW REPLACEMENT UNIT:

Contact your local Cashco Sales Representative with the Serial Number, Product code and the pressure setting. With this information they can provide a quotation for a new unit including a complete description, price and availability.

⚠ CAUTION

Do not attempt to alter the original construction of any unit without assistance and approval from the factory. All purposed changes will require a new name plate with appropriate ratings and new product code to accommodate the recommended part(s) changes.

PARTS "KIT" for FIELD REPAIR:

Contact your local Cashco Sales Representative with the Serial Number and Product code. Identify the parts and the quantity required to repair the unit from the "BOM" sheet that was provided when unit was originally shipped.

NOTE: *Those part numbers that have a quantity indicated under "Spare Parts" in column "A" reflect minimum parts required for inspection and rebuild, - "Soft Goods Kit". Those in column "B" include minimum trim replacement parts needed plus those "Soft Goods" parts from column "A".*

If the "BOM" is not available, refer to the cross-sectional drawings included in this manual for part identification and selection.

A Local Sales Representative will provide quotation for appropriate Kit Number, Price and Availability.

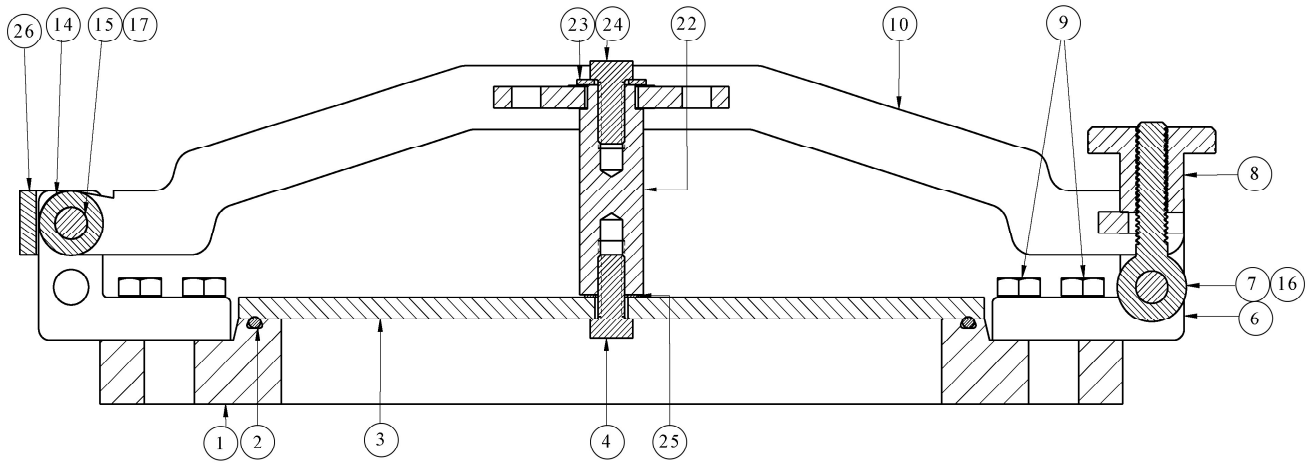

Figure 1: Gauge Hatch Model

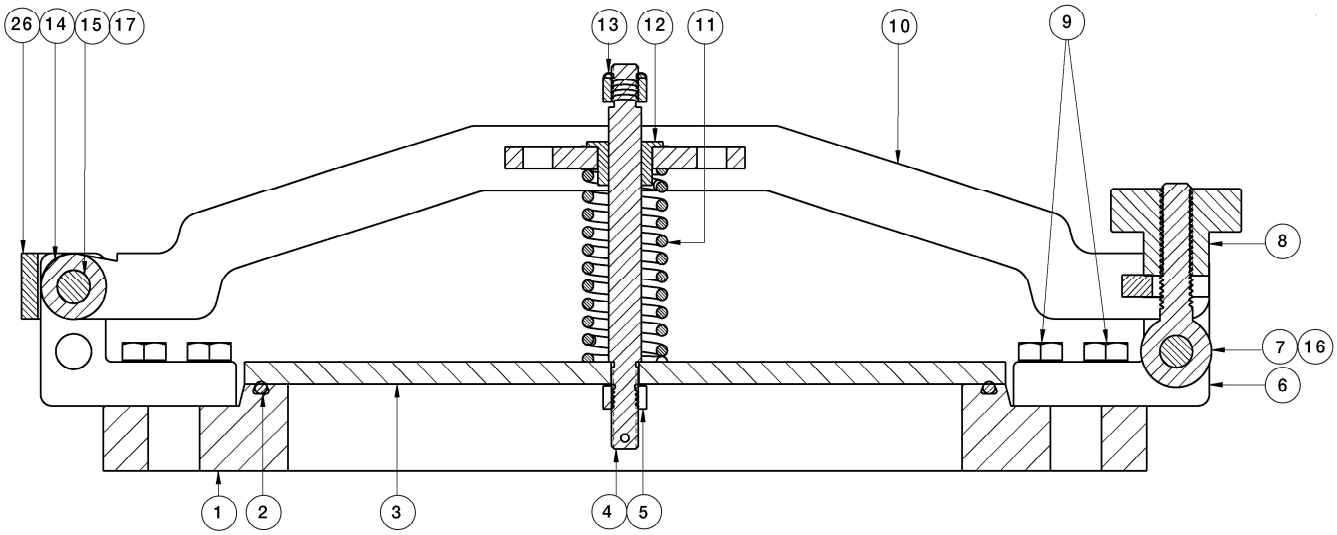

Figure 2: Pressure Model

PART LIST

ITEM NO.	Description		ITEM NO.	Description	ITEM NO.	Description	
1	Base		10	Arm Sub-Assembly	23	Washer	
2	O-Ring	‡	11	Pressure Spring	24	Bolt	
3	Pressure Pallet		12	Guide Bushing	25	Bolt Gasket	‡
4	Threaded Stem/ Bolt		13	Nut	26	Stop Bracket	
5	Self-Sealing Nut		14	Spacer	32 *	Limit Switch	
6	“L” Bracket		15	Bolts	33 *	Limit Switch Screw	
7	Rod End		16	Spacer (Rod End)	34 *	Cotter Pin	
8	Knob		17	Nut			
9	Bolt		22	Stem		* = Item not shown	

‡ Recommended replacement parts.

MODEL 2199

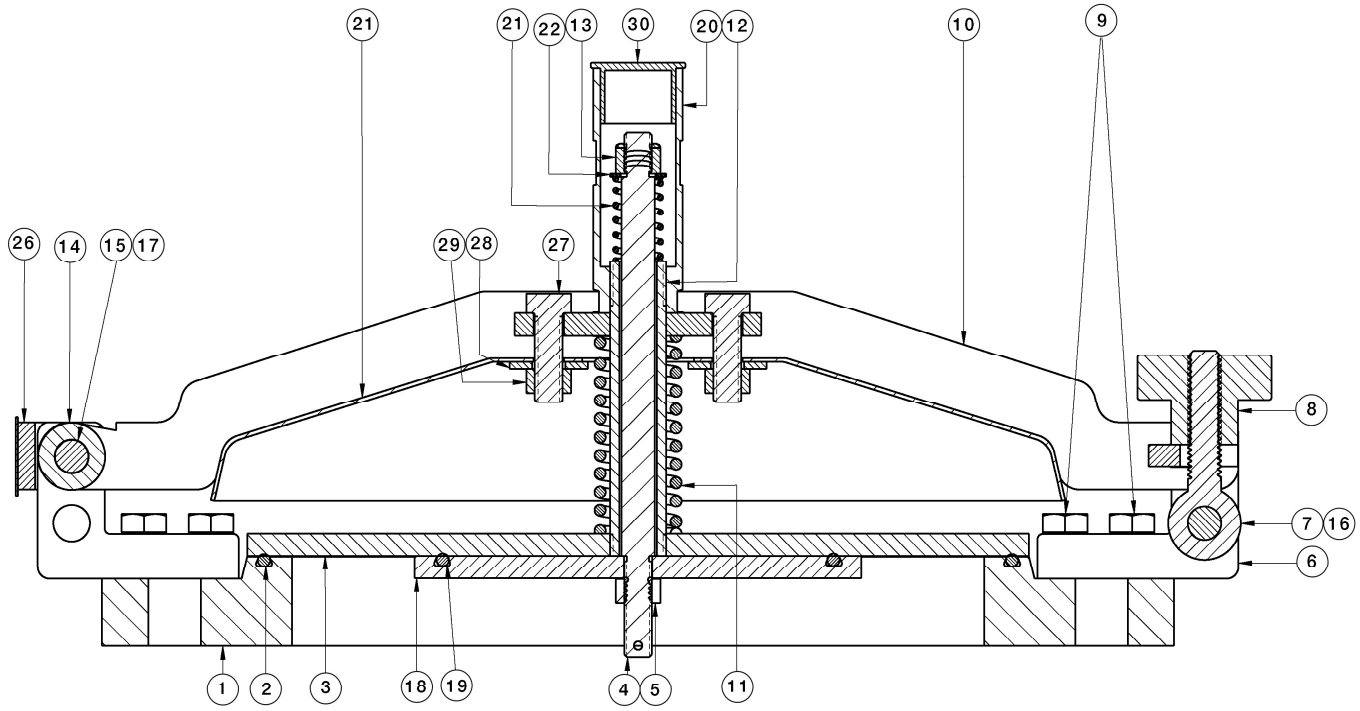

Figure 3: Pressure - Vacuum Model

PART LIST

ITEM NO.	Description		ITEM NO.	Description	ITEM NO.	Description		ITEM NO.	Description
1	Base		10	Arm Sub-Assembly	19	O-ring	‡	31	Weatherhood
2	O-Ring	‡	11	Pressure Spring	20	Cap		32 *	Limit Switch
3	Pressure Pallet		12	Threaded Guide	21	Vacuum Spring	‡	33 *	Screws
4	Threaded Stud		13	Nut	22	Washer			
5	Self-Sealing Nut		14	Spacer	26	Stop Bracket			
6	“L” Bracket		15	Bolts	27	Cap Screw			
7	Rod End		16	Spacer (Rod End)	28	Washer			
8	Knob		17	Nut	29	Nut			* = Item not shown
9	Bolt		18	Vacuum Pallet	30	Plug			

‡ Recommended replacement parts.

IOM ADDENDUM:

ATEX DIRECTIVE 2014/34/EU and THE EQUIPMENT AND PROTECTIVE SYSTEMS INTENDED FOR USE IN POTENTIALLY EXPLOSIVE ATMOSPHERES REGULATIONS 2016

Cashco declares that the products listed in the table below has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II of the ATEX Directive 2014/34/EU and given in Schedule 1 of The Equipment and Protective Systems Indented for Use in Potentially Explosive Atmospheres Regulations 2016. Compliance with the Essential Health and Safety Requirements has been assured by compliance with EN ISO 80079-36:2016 and EN ISO 80079-37:2016. The product will be marked as follows:

II 2 G
Ex h IIB T6... T1 Gb
1000ATEXR1 X

The 'X' placed after the technical file number indicates that the product is subject to specific conditions of use as follows:

1. The maximum surface temperature depends entirely on the operating conditions and not the equipment itself. The combination of the maximum ambient and the maximum process medium temperature shall be used to determine the maximum surface temperature and corresponding temperature classification, considering the safety margins described prescribed in EN ISO 80079-36:2016, Clause 8.2. Additionally, the system designer and users must take precautions to prevent rapid system pressurization which may raise the surface temperature of system components and tubing due to adiabatic compression of the system gas. Furthermore, the Joule-Thomson effect may cause process gases to rise in temperature as they expand going through a regulator. This could raise the external surface temperature of the regulator body and the downstream piping creating a potential source of ignition. Whether the Joule-Thomson effect leads to heating or cooling of the process gas depends on the process gas and the inlet and outlet pressures. The system designer is responsible for determining whether the process gas temperature may raise under any operating conditions.

2. Where the process medium is a liquid or semi-solid material with a surface resistance in excess of 1GΩ, special precautions shall be taken to ensure the process does not generate electrostatic discharge.

3. Special consideration shall be made regarding the filtration of the process medium if there is a potential for the process medium to contain solid particles. Where particles are present, the process flow shall be <1m/s (<3.3 ft/s) in order to prevent friction between the process medium and internal surfaces.

4. Effective earthing (grounding) of the product shall be ensured during installation.

5. The valve body/housing shall be regularly cleaned to prevent build up of dust deposits.

6. Regulators must be ordered with the non-relieving option (instead of the self-relieving option) if the process gas they are to be used with is hazardous (flammable, toxic, etc.). The self-relieving option vents process gas through the regulator cap directly into the atmosphere while the non-relieving option does not. Using regulators with the self-relieving option in a flammable gas system could create an explosive atmosphere in the vicinity of the regulator.

7. Tied diaphragm regulators with outlet ranges greater than 7 barg (100 psig) should be preset to minimize the risk that improper operation might lead to an outboard leak and a potentially explosive atmosphere.

8. All equipment must only be fitted with manufacturer's original spare parts.

9. Ensure that only non-sparking tools are used, as per EN 1127-1, Annex A.

	PRODUCT
REGULATORS	31-B, 31-N
	1164, 1164(OPT-45)
	1171, 1171(OPT-45), 1171(CRYO)
	2171, 2171(OPT-45), 2171(CRYO), 3171
	1465, 3381, 3381(OPT-45), 3381(OPT-40)
	4381, 4381(OPT-37), 4381(CRYO), 4381(OPT-45), 5381
	MPRV-H, MPRV-L
	PBE, PBE-L, PBE-H
	CA-1, CA-2
	CA1, SA1, CA4, SA4, CA5, SA5
	DA2, DA4, DA5, DA6, DA8
	DA0, DA1, DAP, SAP
	SLR-1, SLR-2, PTR-1
	ALR-1, ULR-1, PGR-1
	BQ, BQ(OPT-45), BQ(CRYO)
	123, 123(CRYO), 123(OPT-45), 123(OPT-46G)
	123-1+6, 123-1+6(OPT-45), 123-1+6(OPT-46G), 123-1+6+S, 123-1+6+S(OPT-40)
	1000HP, 1000HP(OPT-37), 1000HP(OPT-45), 1000HP(OPT-45G), 1000HP(CRYO)
	1000HP-1+6, 1000HP-1+8, 1000LP, 1000LP(OPT-45), 1000LP(OPT-46G)
	6987
	8310HP, 8310HP-1+6, 8310HP-1+8, 8310LP, 8311HP, 8311LP
	345, 345(OPT-45)
	BA1/BL1, PA1/PL1
	C-BPV, C-PRV, C-CS
	D, D(CRYO), D(OPT-37), D(OPT-20), D(OPT-45)
	DL, DL(LCC), DL(OPT-45)
	BR, BR(CRYO)
	HP, HP(LCC), HP(OPT-45), HP(OPT46G), HP-1+6+S(OPT-40), HP-1+6+S
	P1, P2, P3, P4, P5, P7
	B2, B7
	POSR-1, POSR-2
	5200P, 5300P
	135
	NW-PL, NW-SO
	CG-PILOT
	FG1
CONTROL VALVES	RANGER, 987, PREMIER
	964, 521, 988, 988-MB, 989
	2296/2296HF
	SCV-30, SCV-S
TANK BLANKETING	8700, 8910, 8920, 8930, 8940
	2100, 2199
	3100, 3200, 3300, 3400, 3500, 3600, 3700
	1078, 1088, 1100, 1049
	5100, 5200, 5400 ,5500
	4100, 4200, 4300, 4400, 4500, 4600
MISC	764P/PD, 764-37, 764T

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