

This document contains the recommended procedures for installing, operating and maintaining a Mid- or Bottom-Flange Series 4000 Marsh Hawk TRV Venting Gauge Hatch. Read and understand this document prior to installing, operating or maintaining the Series 4000 Marsh Hawk TRV. Suitable for use with all Series 4000 Marsh Hawk TRVs manufactured after August 2011.

NOTE: INFORMATION REQUIRED FOR SUCCESSFUL INSTALLATION

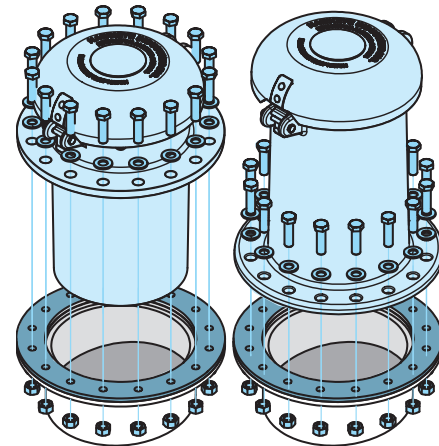
CAUTION: INFORMATION IF NOT FOLLOWED MAY RESULT IN DAMAGE OR INSTALLATION FAILURE

WARNING: INFORMATION IF NOT FOLLOWED MAY RESULT IN INJURY OR DEATH

NOTE: THE MID-FLANGE **[MF]** VARIANT REQUIRES A MINIMUM DIAMETER OPENING OF 7.98" FOR CLEARANCE, CORRESPONDING TO THE TYPICAL ID OF 8" SCH 40 PIPE OR LIGHTER PIPE. THE BOTTOM FLANGE **[BF]** DOES NOT HAVE A MINIMUM OPENING REQUIREMENT.

NOTE: ALL SERIES 4000 MARSH HAWK TRVs REQUIRE AN 8" API 12F CONNECTION.

NOTE: THE SERIES 4000 MARSH HAWK **[MF]** WILL NOT ALLOW ACCESS TO THE INTERIOR OF THE TANK TO INSTALL FASTENERS IF INSTALLED DIRECTLY ON A TANK ROOF. IN THIS CASE CONSIDER USING A **SURESEAL DIRECT MOUNT ADAPTER (HRBA-080X-X)** TO FASTEN THE DEVICE AND ACCOMMODATE 12:1 OR 12:2 PITCHED ROOFS.



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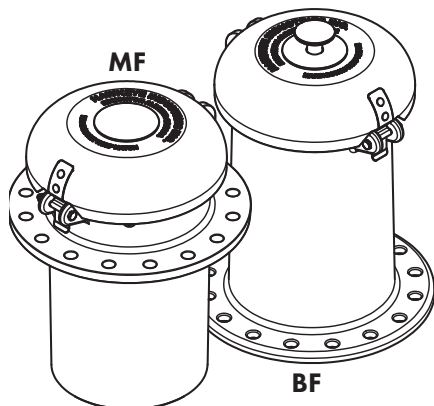
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A INSTALLING THE MARSH HAWK TRV

NOTE: THE SERIES 4000 MARSH HAWK IS AVAILABLE IN TWO MOUNTING OPTIONS - MID-FLANGE **[MF]** WHICH EXTENDS PARTIALLY THROUGH THE TANK NOZZLE, ROOF OR RISER CONNECTION, AND BOTTOM FLANGE **[BF]** WHICH SITS ON TOP OF THE TANK NOZZLE, ROOF OR RISER CONNECTION. INSTRUCTIONS OR NOTES SPECIFIC TO A MID-FLANGE OR BOTTOM FLANGE DEVICE ARE INDICATED BY A **[MF]** OR **[BF]** RESPECTIVELY.



A1 INSTALLATION ON A RISER OR NOZZLE

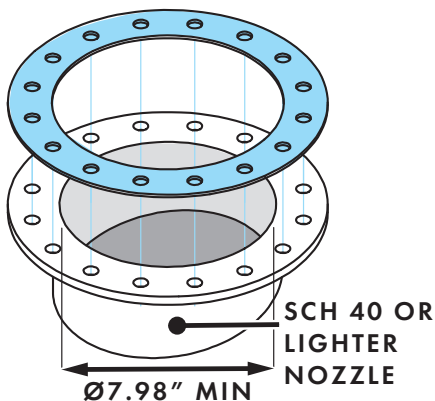
TOOLS

- » 3/4 Box or Socket Wrench (torque wrench recommended)

PARTS REQUIRED

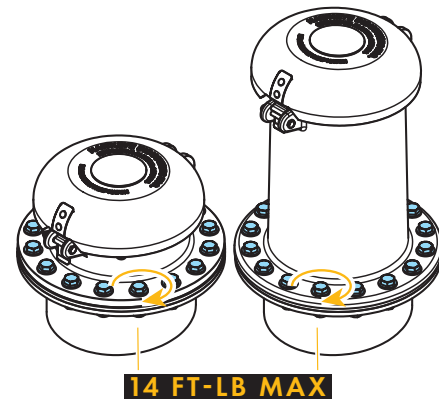
- » 1 Marsh Hawk TRV **[MF]** or **[BF]**
- » 1 8" API Tank Gasket
- » 16 1/2 UNC x 1-3/4 Bolts & Nuts

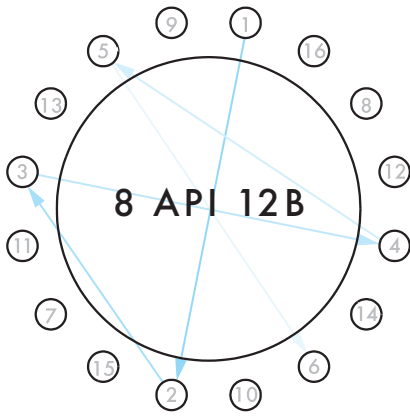
- 1 Place the gasket on the tank flange or opening, taking care to align bolt holes.
- 2 Mount the Marsh Hawk Flange on the base gasket and align bolt holes.



CAUTION: **[MF]** IF THE BODY OF THE MARSH HAWK DOES NOT FIT IN THE TANK OR RISER OPENING, DO NOT FORCE IT INTO POSITION. DO NOT HAMMER ON THE FLANGE OR USE FASTENERS TO SEAT THE DEVICE, AS DAMAGE TO THE DEVICE WILL OCCUR. ENSURE THE TANK OPENING IS SUFFICIENT AND IF REQUIRED USE A 10" TALL RISER TO ACCOMMODATE THE BODY OF THE SERIES 4000 MARSH HAWK **[MF]**.

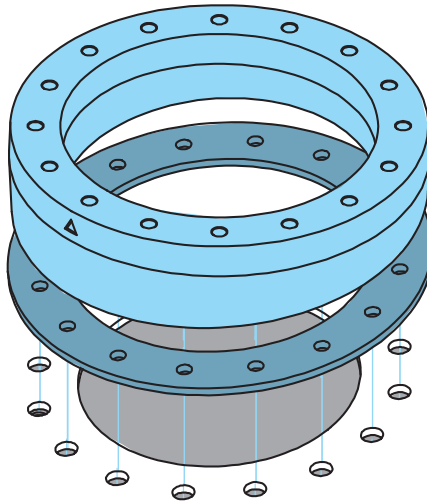
- 3 Fasten the device using the 1/2 UNC fasteners using the 3/4 Box or Socket Wrench. Use washers on the Marsh Hawk Flange side of the bolted connection. Make up the bolted connections hand-tight, then torque to a maximum of 14 ft-lbs, following the pattern below.



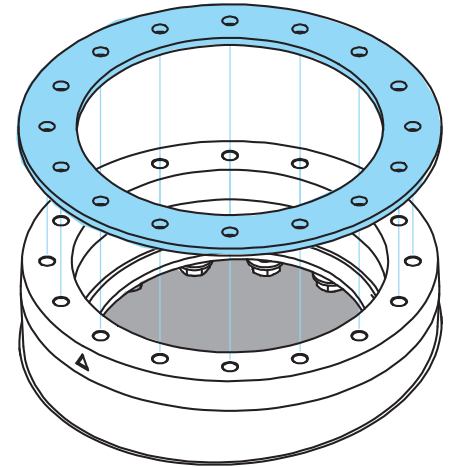


CAUTION: EXCEEDING THE FASTENER INSTALLATION TORQUE CAN DAMAGE THE DEVICE, CAUSING THE DEVICE OR CONNECTION TO LEAK, OR REDUCE SIGNIFICANTLY THE LONG-TERM SEALING PERFORMANCE.

NOTE: HAWKEYE-SUPPLIED FLAT-FACE GASKETS HAVE UNDERSIZE HOLES TO POSITIVELY SEAL ON FASTENERS, WHICH CAN PROVIDE SOME RESISTANCE WHEN INSTALLING BOLTS. THIS RESISTANCE IS EXPECTED AND DESIRED.



NOTE: IF USING A 12:1 OR 12:2 SURESEAL ADAPTER RING, ENSURE THE EMBOSSED ARROW ON THE OUTSIDE DIAMETER OF THE RING IS POINTED UPWARDS, AND THE EDGE OF THE RING WITH THE ARROW IS FACING AWAY FROM THE APEX OF THE TANK ROOF.



3 Align and place the 8 API flat-face gasket on top of the SureSeal adapter ring ensuring bolt holes in the gasket and top side of adapter ring are aligned.

4 Drop on the Series 4000 Marsh Hawk aligning bolt holes with the gasket and top side of SureSeal adapter ring. Install bolts through Flange, Gasket and into the blind holes of the top face SureSeal Adapter ring. Torque to a **maximum 14 ft-lb** following the pattern in A1, step 3.

A2 INSTALLATION WITH SURESEAL ADAPTER

TOOLS

- » 3/4 Box or Socket Wrench (torque wrench recommended)

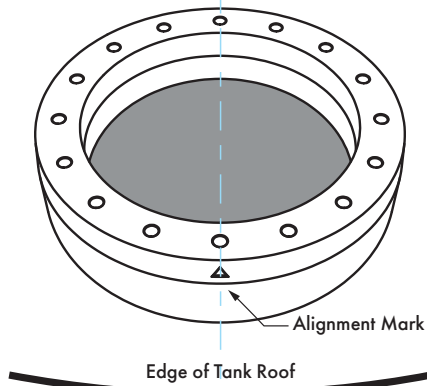
PARTS REQUIRED

- » 1 Series 4000 Marsh Hawk TRV [MF] or [BF]
- » 2× 8" API 12F Flat-face Gasket
- » 32× 1/2" UNC × 1-3/4" (max) Bolts with washers

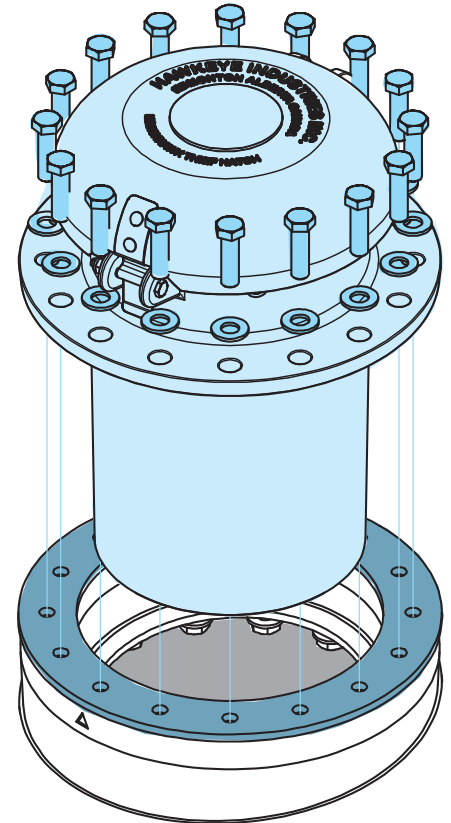
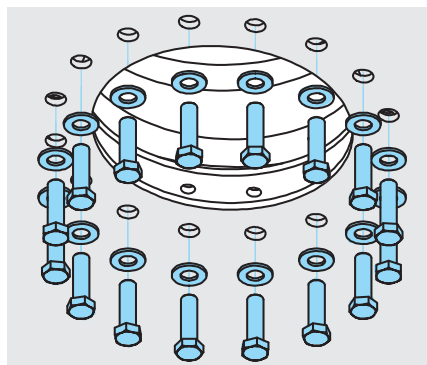
NOTE: THE SERIES 4000 MARSH HAWK (ALL TYPES) PERFORM OPTIMALLY WHEN INSTALLED ON A LEVEL SURFACE. IF INSTALLING ON A SLOPED-ROOF TANK WITHOUT A RISER OR NOZZLE WITH MOUNTING FLANGE PARALLEL TO THE GROUND, USING A SURESEAL ADAPTER RING OR SLOPED RISER IS STRONGLY RECOMMENDED.

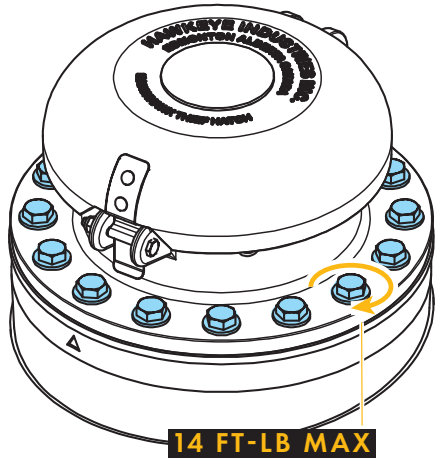
1 Align and place a Flat-face gasket and the SureSeal adapter ring on the 8" API tank opening, ensuring bolt holes in the tank roof, gasket and underside of adapter ring are aligned.

Top / Centre of Tank Roof



2 Install bolts from underside of tank roof, through gasket and into blind holes of the bottom face of the SureSeal adapter ring. Torque to a **maximum 14 ft-lb** following the pattern in A1, step 3.





CAUTION: EXCEEDING THE FASTENER INSTALLATION TORQUE CAN DAMAGE THE DEVICE, CAUSING THE DEVICE OR CONNECTION TO LEAK, OR REDUCE SIGNIFICANTLY THE LONG-TERM SEALING PERFORMANCE.

NOTE: HAWKEYE-SUPPLIED FLAT-FACE GASKETS HAVE UNDERSIZE HOLES TO POSITIVELY SEAL ON FASTENERS, WHICH CAN PROVIDE SOME RESISTANCE WHEN INSTALLING BOLTS. THIS RESISTANCE IS EXPECTED AND DESIRED.

NOTE: THE SURESEAL ADAPTER RING CAN ALSO BE USED WITH THE SERIES 4000 MARSH HAWK [BF] DEVICE, AND IS USEFUL FOR ENSURING THE DEVICE IS INSTALLED LEVEL ON SLOPED-ROOF TANKS.

B OPERATING THE MARSH HAWK TRV

CAUTION: DO NOT OPERATE THE SERIES 4000 MARSH HAWK WITH COVER OPEN, OR WITHOUT SPIDER CAGE INTERNALS INSTALLED. DAMAGE TO THE DEVICE, TANK, PROCESS OR ENVIRONMENT MAY OCCUR.

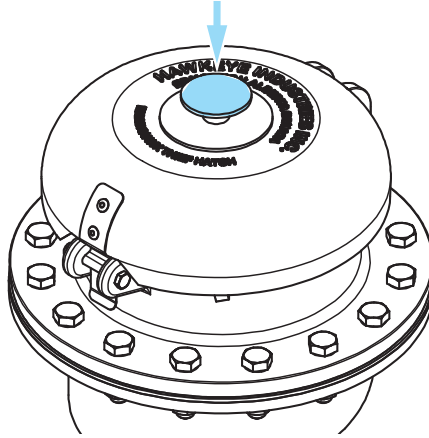
NOTE: THERE ARE NO APPRECIABLE DIFFERENCES BETWEEN OPERATING THE SERIES 4000 MARSH HAWK [MF] AND [BF] MOUNTING OPTIONS.

B1 REMOVING SPIDER CAGE (VENT INTERNALS)

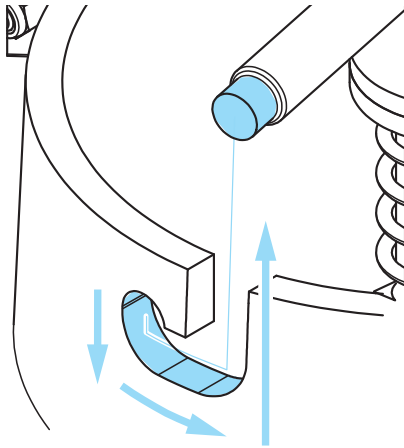
WARNING: DO NOT REMOVE SPIDER CAGE WHILE THE TANK IS UNDER PRESSURE.

1 Relieve tank pressure by pressing down on the manual relief button (if equipped) until the sound or vibration of flow through the vent ceases. Alternatively, open a secondary pressure relief valve to bleed tank pressure.

PUSH AND HOLD

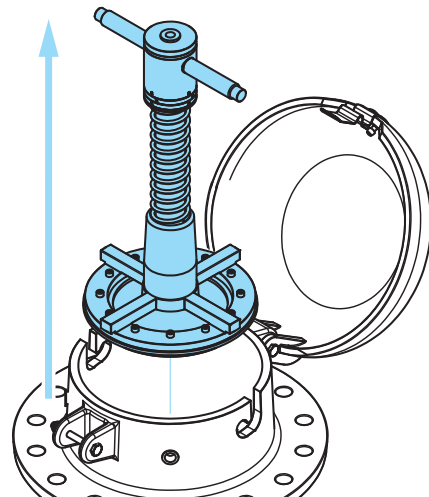


2 Remove the Spider Cage by pressing down on the pressure spring guide handle, rotating counterclockwise to disengage from the J-slots.



WARNING: KEEP TWO HANDS ON THE SPIDER CAGE IN CASE THERE IS ANY RESIDUAL PRESSURE IN THE TANK.

3 Lift the Spider Cage assembly straight out of the hatch body.



4 Install Spider Cage by following these steps in reverse.

B2 DETERMINE PRESSURE-RELIEF SETTING

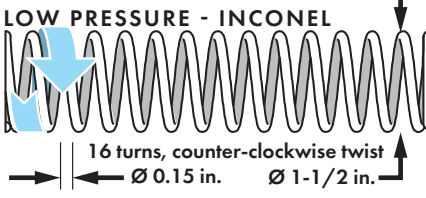
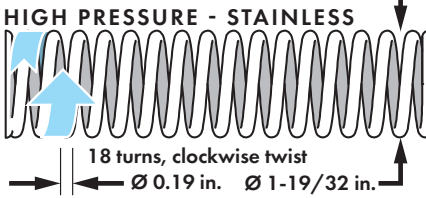
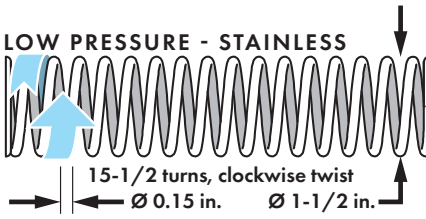
Determining the pressure-relief setting of the Series 4000 Marsh Hawk requires identifying the pressure spring as well as type and quantity of pressure spacers.

PRESSURE SPRING

The pressure spring influences the contribution by the pressure spacers and needs to be identified correctly..

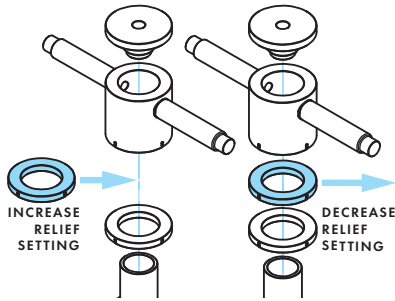
Spring Type	Color
Low Pressure - Stainless	Yellow + Brown
Low Pressure - Inconel	Green + Brown
High Pressure - Stainless	Yellow + Blue

NOTE: ONLY SERIES 4000 MARSH HAWKS MANUFACTURED AFTER NOVEMBER 2025 WILL HAVE COLOR-CODED SPRINGS. FOR DEVICES MANUFACTURED BEFORE NOVEMBER 2025 OR IF THE PAINT IS NO LONGER VISIBLE, REFER TO THE DIMENSIONS TO DETERMINE THE SPRING TYPE. MORE INFORMATION CAN BE FOUND IN [TB-1225-MHSI](#)



Scan to download and read
TB-1225-MHSI

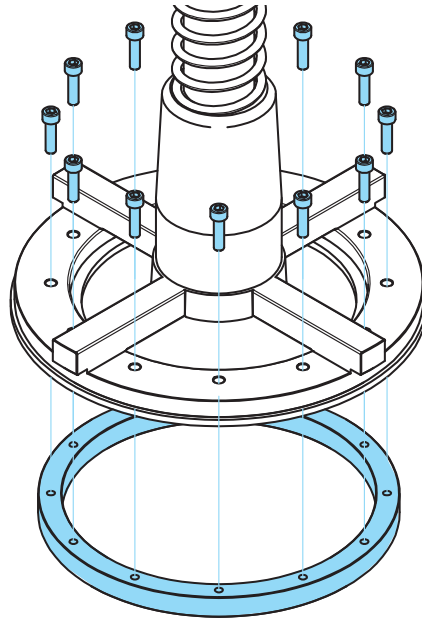
- 5** Add or remove pressure spacers to increase or decrease the relief pressure setting. The pressure regime can be switched from low pressure (2 – 16 ozsi) to high pressure (18 – 32 ozsi) or vice versa by swapping springs and using appropriate spacers. See B2 for determining pressure-relief setting.



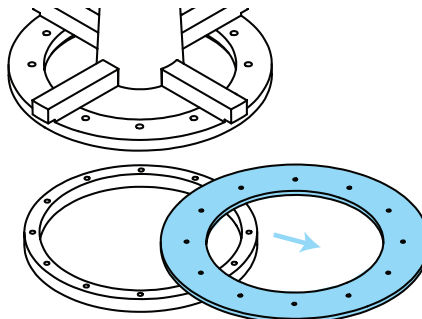
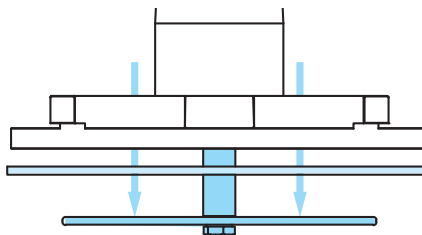
- 6** Reassemble by following steps 1 to 3 in reverse.

CAUTION: DO NOT EXCEED A TOTAL SPACER (STANDARD, THIN AND BIAS SPACERS) STACK HEIGHT OF 1.55 IN. EXCEEDING THE MAXIMUM PRESSURE SPACER STACK HEIGHT WILL LIMIT THE VENTING CAPACITY OF THE SERIES 4000 MARSH HAWK AND MAY CAUSE DAMAGE TO THE DEVICE, TANK, PROCESS OR ENVIRONMENT.

- 2** Remove the 12 #8-32 NC Socket Head Cap Screws with the 9/64 Allen wrench, freeing the gasket retaining ring.

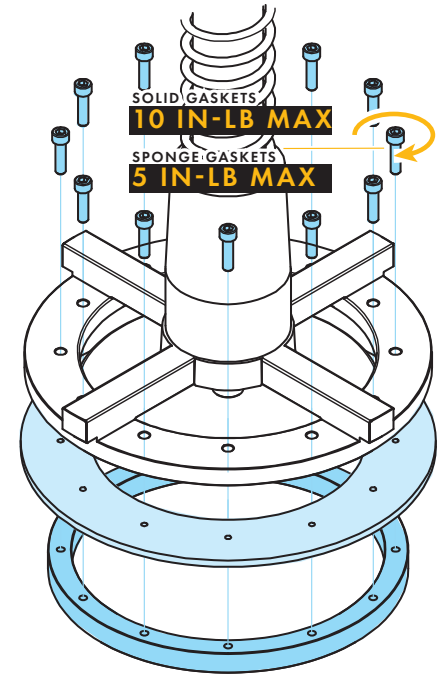


- 3** Using light pressure, push the vacuum plate out of the way, and slide the gasket around it and off of the Spider Cage.



- 4** Place a drop of green retaining compound in each hole of the retaining ring.

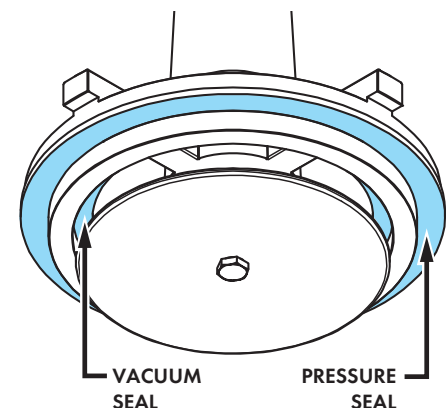
- 5** Align holes on new gasket with holes on Spider Cage and retaining ring. Replace the 12 #8-32 NC Socket Head Cap screws, torquing to 10 in-lb (5 in-lb for sponge gaskets). Reapply sealant on gasket surfaces, per Part C2, step 7.



CAUTION: EXCEEDING THE RECOMMENDED FASTENER TORQUE CAN CAUSE DAMAGE TO THE GASKET AND DECREASE SEALING PERFORMANCE OF THE SERIES 4000 MARSH HAWK.

NOTE: GENUINE HAWKEYE P+V GASKETS HAVE UNDERSIZE HOLES TO POSITIVELY SEAL ON FASTENERS. THIS CAN PROVIDE SOME RESISTANCE WHEN INSTALLING THE SOCKET HEAD CAP SCREWS. THIS RESISTANCE IS EXPECTED AND DESIRED.

- 6** Apply sealant to the complete underside of the new gasket. Use light pressure to push the vacuum plate out of the way to access the underside of the gasket.



- 7** Reinstall the Spider Cage per B1.

C MAINTAINING THE MARSH HAWK TRV

NOTE: THERE ARE NO APPRECIABLE DIFFERENCES IN MAINTAINING THE SERIES 4000 MARSH HAWK [MF] AND [BF].

C1 REPLACING PRESSURE / VACUUM GASKET

TOOLS

- » 9/64 Allen Key

PARTS REQUIRED

- » 1× Marsh Hawk P+V Seal Service Kit, c/w
- » Genuine Replacement gasket in specified material
- » 4561 Sealant
- » Applicator brush for sealant
- » Retaining Compound (Loctite Green 680 or eq.)

- 1** Remove the Spider Cage as per B1.

C2 INSPECTION AND RELUBRICATION

The frequency of inspection and relubrication is application-specific and are determined by the following variables:

- » Chemical Exposure
- » Elevated pressure
- » High velocity flow
- » Elevated temperature
- » Use as primary, upset and/or emergency relief

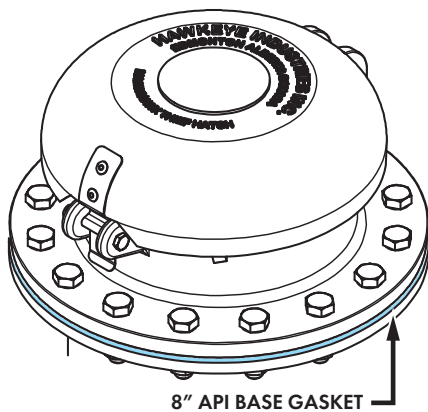
The more frequent venting activity, the higher the temperature, the harsher the chemicals the vent is exposed to would all necessitate more frequent inspection and maintenance.

NOTE: HAWKEYE FACTORY-APPLIES 4561 SEALANT AT THE TIME OF ASSEMBLY. ITS STRONGLY RECOMMENDED THE SAME 4561 SEALANT BE USED FOR RELUBRICATION.

PARTS REQUIRED

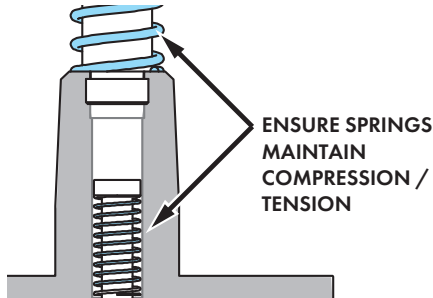
- » Hawkeye Severe Service 4561 sealant
- » Available in 1 oz (VCST-0000) or 12 oz tubs (VCST-0120) c/w Applicator brush.

- 1** Remove the Spider Cage as per B1.
- 2** Inspect the pressure and vacuum sealing areas. Look for signs of: Wear, Cracking, Swelling, Dryness, Pitting, Tearing, or other deformities. Any of the above would necessitate replacing the gasket, per C1.
- 3** Inspect the 8" API base gasket. Look for signs of: Wear, Cracking, Swelling, Dryness, Pitting, Tearing, or other deformities. Any of the above would necessitate replacing the gasket, per A1 or A2.



- 4** Ensure the fasteners on the 8" API connection are torqued per specification. Both loose fasteners and overtight fasteners can manifest leaks. If fasteners have been overtightened, replace the 8" API tank gasket.
- 5** Inspect the Spider Cage. Ensure all parts are present, there is no erosion of material, signs of corrosion and that all fasteners are snug.

- 6** Inspect the springs. They should be under tension / compression at all times. The vacuum pallet should return to its seat position if it is gently activated. If the vacuum pallet does not close and make a positive seal on the gasket, or if the pressure spring is loose when assembled, the springs should be replaced. Inconel springs are available for severe service.



- 7** Inspect the Series 4000 Marsh Hawk body, notably the inner sealing surface and ensure the surface is free of debris. Look for signs of pitting, corrosion and wear, and replace if damaged.
- 8** If everything clears inspection, apply the recommended grease in an even coating on both the pressure and vacuum seals as shown in C1 step 6 and reassemble per B1.

C3 ANTIFREEZE SOLUTIONS

It is not recommended to use antifreeze solution on a Series 4000 Marsh Hawk on a normally operating device, even as a preventative measure. Accumulation of fluid on the vacuum plate can reduce the sealing effectiveness of the device, paradoxically increasing the chances of it icing up.

Should antifreeze solutions be used, care must be taken the fluids are compatible with the seal material. Consult the chart below to gauge general compatibility of common antifreeze agents and common seal materials. Refer to the Hawkeye Chemical Compatibility table for more information

CAUTION: USE OF NON-RECOMMENDED ANTIFREEZE AGENTS MAY CAUSE THE SERIES 4000 MARSH HAWK TRY TO VENT CONTINUOUSLY OR SEIZE CLOSED.

Scan to download and read
Chemical Compatibility Chart



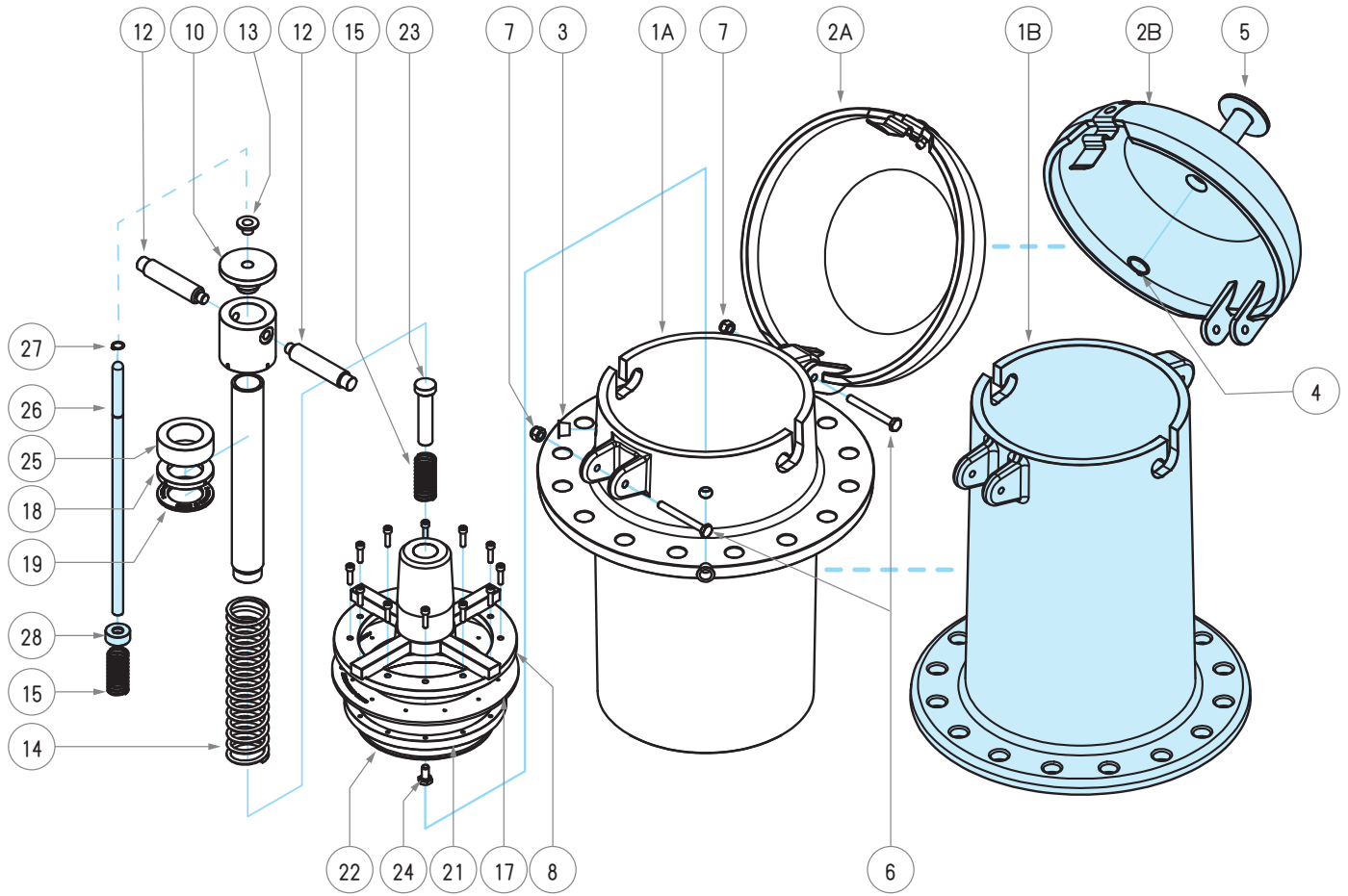
ANTIFREEZE SOLUTION	GASKET MATERIAL		
	FKM & eFKM	FEPM	FFKM
Methanol	4	1	1
Ethanol	3	1	1
Isopropanol	1	1	1
Ethylene Glycol	1	1	1

1 - Satisfactory 2 - Fair 3 - Doubtful 4 - Avoid

C4 TROUBLESHOOTING COMMON PROBLEMS

PROBLEM: Vent is Leaking or Frequently Opening	
Symptom Of	Solution
Unlubricated Pressure / Vacuum Seal	Perform the inspection and re-lubrication procedures detailed in C2. Ensure antifreeze agents (if used) are compatible with gasket material (see C4)
Worn or Damaged Pressure / Vacuum Seal	Ensure that the set pressure of the Marsh Hawk is sufficiently above the operating pressure of the tank. Set pressure should be 2 - 4 ozsi over operating pressure.

PROBLEM: Vent is not opening	
Symptom Of	Solution
Debris blocking action	Open lid and ensure the vent cavity is clear of debris and obstructions. If debris accumulates, consider adding a TRV Mesh Screen.
Stuck Pressure or Vacuum Pallet	Remove the Spider Cage assembly per B1 to ensure the pressure and vacuum pallets are free to move and are free from ice. Ensure antifreeze agents (if used) are compatible with gasket material (see C4)
Set pressure set too far from operating pressure	Ensure that the set pressure of the Marsh Hawk is sufficiently below the desired relieving pressure and the design pressure of the tank.



Substitutions shown shaded.

BOTTOM FLANGE substitutes 1A with 1B and deletes 3.

MANUAL RELIEF substitutes 2A with 2B, adds 4, 5, 26, 27, 28, an additional 15 and deletes 13.

HIGH PRESSURE substitutes 14 with 16, and adds 25

Item	Part #	Part Name	Material	Item	Part #	Part Name	Material
1A	215.300.140	HOUSING-MH	356 Al	15	010.166.070	SPRING-VACCUUM	302 SS Opt: Inconel
1B	215.300.19X	HOUSING-MH BOTTOM FLANGE	356 Al	16	010.166.110	SPRING-PRESSURE HP	302 SS
2A	215.200.010	COVER WITH LATCH	356 Al	17	010.318.15X	GASKET-MARSH HAWK P/V SEAL	Varies
2B	215.200.020	COVER WITH LATCH FOR MANUAL RELIEF	356 Al	18	215.300.020	SPACER-MH SET PRESS. STD	6061 Al
3	030.000.300	PIPE CAP-DUAL M/F 1/4 NPS	LDPE	19	215.300.030	SPACER-MH SET PRESS. THIN	6061 Al
4	010.0C6.020	RETAINING RING 3/4 SHAFT	18-8 SS	20	010.006.010	CAP SCREW-HEX SKT HD #8-32UNC	18-8 SS
5	215.300.044	BUTTON-MH MAN. REL.	6061 Al	21	215.300.070	MH SEAL RETAINER RING	6061 Al
6	010.006.050	CAP SCREW-HEX FOR COVER 1/4-20UNC	18-8 SS	22	215.300.060	VACUUM DISC-M/C	5052 Al
7	010.0A6.060	NUT-HEX NYL. INS. LOCK 1/4-20UNC	18-8 SS	23	215.300.100	VACCUUM STEM-MH SHLDR'D	6061 Al
8	215.300.150	SPIDER CAGE-MH M/C FROM CAST	710 Al	24	010.006.070	CAP SCREW-HEX 1/4-20UNx1/2 L	18-8 SS
9	215.300.090	GUIDE-MH PRES. SPRG	6061 Al	25	215.300.225	SPACER-MH SET PRESS. BIAS FOR HP	6061 Al
10	215.300.050	CAP-MH PRES. SPRNG GD	6061 Al	26	215.300.120	POPPET-MH MAN. REL. 3/8 ODx10-7/8 L AL BARE	6061 Al
11	215.300.010	COLLAR-MH PRES. SPRNG	6061 Al	27	010.0C6.030	RETAINING RING-EXTERNAL LUGS 5100 3/8 SHAFT 18-8 SS	18-8 SS
12	215.300.130	HANDLE-MH PRES. SPRNG GD	6061 Al	28	215.300.180	SPRING GUIDE CUP - MH MAN. REL 7/8 OD x 3/8 T ACETAL (DELTRIN)	ACETAL
13	030.000.310	TAPER CAP	LDPE				
14	010.166.020	SPRING-PRESSURE LP	302 SS Opt: Inconel				



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