

This document contains the recommended procedures for installing, operating and maintaining a Series 6000 12" throat Pressure and Vacuum Relief Vent (PVRV). Read and understand this document prior to installation, operation or maintenance of the PVRV.

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

PART A: INSTALLATION

THE ILLUSTRATIONS IN THIS DOCUMENT PRIMARILY DEPICT A 12" THROAT PVRV WITH PRESSURE AND VACUUM RELIEF. THE WRITTEN INSTRUCTIONS UNLESS OTHERWISE STATED APPLY TO ALL CONFIGURATIONS OF PVRV. ALL PARTS ARE IDENTIFIED AND ILLUSTRATED ON PAGE 4 OF THIS DOCUMENT FOR REFERENCE.

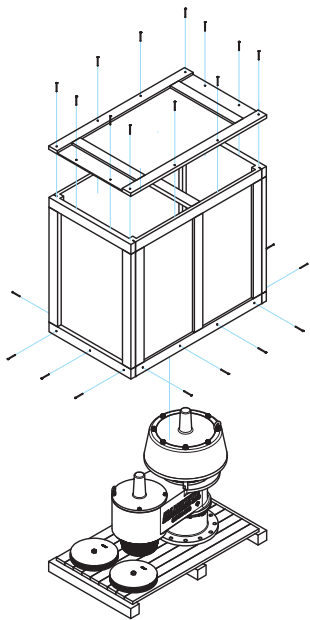
TOOLS

- » Box or Socket Wrench for mounting hardware (torque wrench recommended)
- » 1-1/8 for 8" ANSI 150# connection
- » 1-5/16 for 10" and 12" ANSI 150# connection

PARTS REQUIRED

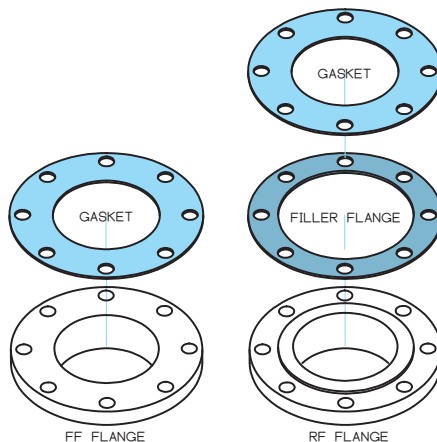
- » 1 Series 6000 PVRV
- » 1 Base Gasket
- » 1 Bolt Kit

- 1** Remove the PVRV, weight boxes and documentation/ bolt kit box from the PVRV crate. NOTE: Some boxes are used for packing purposes and may be empty. Boxes with required components are distinctively labelled.



**DO NOT
THROW AWAY
REQUIRED
COMPONENTS INSIDE**

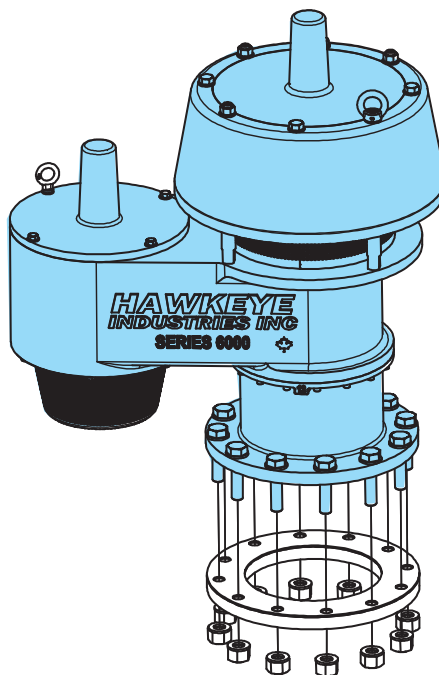
- 2** Place the connection gasket on the tank connection and align holes.



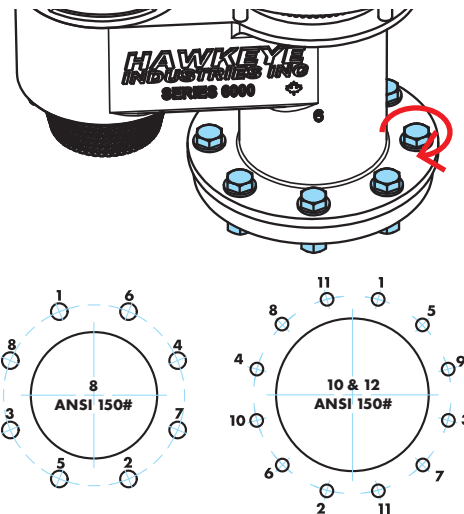
NOTE: IF MOUNTING THE PVRV TO A RAISED-FACE (RF) FLANGE, A FILLER FLANGE IS REQUIRED.

CAUTION: MOUNTING THE PVRV ON A RAISED FACE FLANGE WITHOUT A FILLER FLANGE CAN DAMAGE THE VENT AND AFFECT PERFORMANCE.

- 3** Mount the PVRV on the base gasket and align holes.



- 4** Fasten with supplied bolt kit and torque the bolts according to the table and sequence illustrated below. Torque may require adjustment based on conditions and gasket type used.



TORQUE RECOMMENDATION

CXN	8 ANSI	10 ANSI	12 ANSI
Torque	26 ft-lb	48 ft-lb	68 ft-lb

- 5** If equipped with a pipe-away connection, fasten to piping system with appropriate connection hardware and gaskets.

PART B: RELIEF CONFIGURATION

One- or both-sides (pressure and/or vacuum) of the device may have weight plates factory-installed, depending on valve setting and configuration. A label on the device will indicate if weights are already installed, and the following procedure is not required. For device that require installation of weight plates, follow steps 1 through 5 for the pressure side, 6 through 10 for vacuum.

CAUTION: IF SET PRESSURE IS CHANGED FROM THE FACTORY SETTING, THE DEVICE TAG MUST BE REPLACED WITH ONE SHOWING THE REVISED RELIEF RATING. REMOVE THE OLD TAG AND INSTALL THE NEW TAG WITH THE SUPPLIED DRIVE SCREWS.

NOTE: AN EXPLODED VIEW CONTAINING ALL PARTS AND VENT COMBINATIONS IS PROVIDED FOR REFERENCE ON THE LAST PAGE OF THIS DOCUMENT.

TOOLS

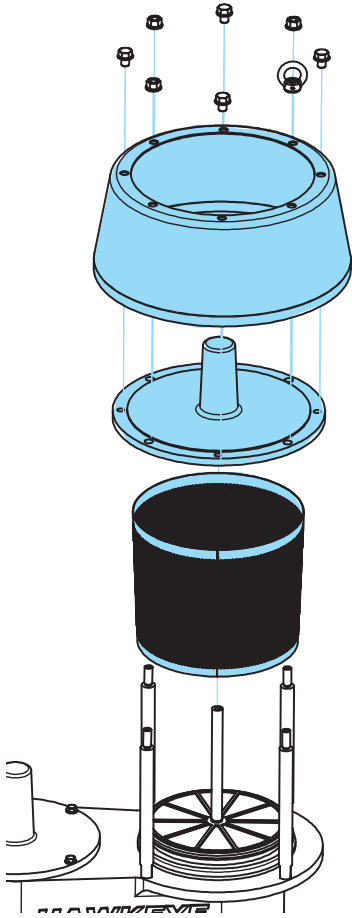
- » 3/4 Box or Socket Wrench
- » 1-1/8 Box or Socket Wrench
- » 4561 Severe Service Grease

PARTS REQUIRED

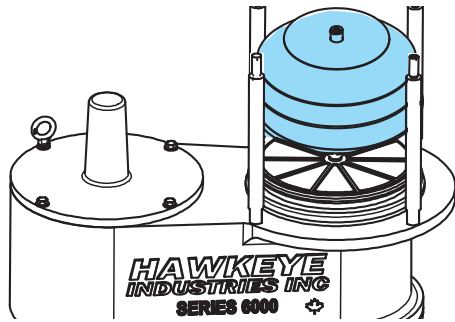
- » 1 Series 6000 PVRV Weight Kit(s)

PRESSURE SIDE

- 1** Remove the 3/4" bolts and nuts from the pressure side with the 1-1/8" Wrench and remove the pressure cover, pressure hood and pressure screen to reveal the pressure pallet.



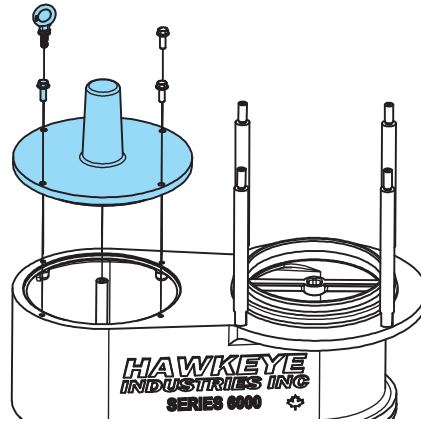
- 2** Install the weight plates over the upper guide stem of the pressure pallet. Refer to the table at the end of this section for weight plate configurations.



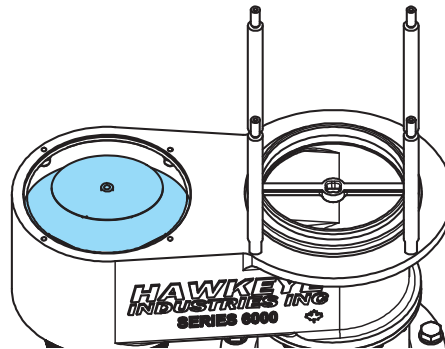
- 3** Follow steps 1 & 2 in reverse order to reassemble the pressure-side of the device.

VACUUM SIDE

- 4** Remove the bolts from the vacuum side with the 3/4" Box or Socket Wrench and remove the vacuum cap/cover.



- 5** Install the weight plates over the upper guide stem of the vacuum pallet. Refer to the table at the end of this section to for weight plate configurations.

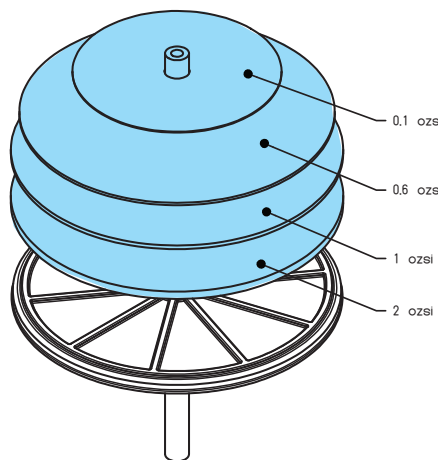


- 6** Follow steps 4 & 5 in reverse order to reassemble the vacuum-side of the device.

WEIGHT CONFIGURATION

NOTE: EACH VALVE REQUIRES NO MORE THAN:
 1 × 0.25 OZSI WEIGHT
 1 × 0.5 OZSI WEIGHT AND
 1 × 1 OZSI WEIGHT

NOTE: PLACE THE LARGEST DIAMETER WEIGHT PLATES ON THE BOTTOM OF THE STACK AND END WITH THE SMALLEST WEIGHT PLATE ON THE TOP.



WEIGHT CONFIGURATION

	STD Valve
Base Pressure / Vacuum Setting (no weight)	0.4 ozsi
Weight Colour	Silver
Weight Part Numbers	
0.10 ozsi	220.320.010
0.50 ozsi	220.320.020
0.60 ozsi	220.320.030
1.0 ozsi	220.320.040
2.0 ozsi	220.320.050

Desired Setting	Weight Configuration
	STD Valve
0.4 ozsi	No weights
0.5 ozsi	1 × 0.10 ozsi Weight
1.0 ozsi	1 × 0.60 ozsi Weight
1.5 ozsi	1 × 0.10 ozsi Weight 1 × 1 ozsi Weight
2.0 ozsi	1 × 0.60 ozsi Weight 1 × 1 ozsi Weight
2.5 ozsi	1 × 0.10 ozsi Weight 1 × 2 ozsi Weight
4.0 ozsi	1 × 0.60 ozsi Weight 1 × 1 ozsi Weight 1 × 2 ozsi Weight
16 ozsi	1 × 0.60 ozsi Weight 1 × 1 ozsi Weight 7 × 2 ozsi Weight

PART C: REPLACING OR GREASING PRESSURE AND VACUUM SEAL

The instructions below are for a 8, 10 or 12" PVRV with pressure and vacuum relief. The same general steps apply to any combination of pressure, vacuum or pipe-away vents.

TOOLS

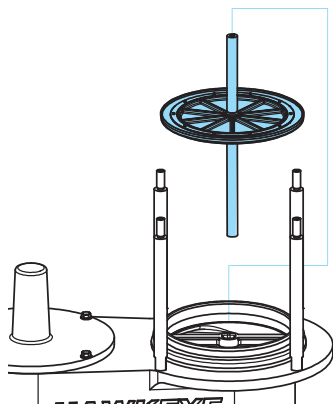
- » 3/4 Box or Socket Wrench
- » 1-1/8 Box or Socket Wrench
- » 3/32 Allen key
- » 4561 Severe Service Grease

PARTS REQUIRED

- » 1 Replacement Gaskets (if required)

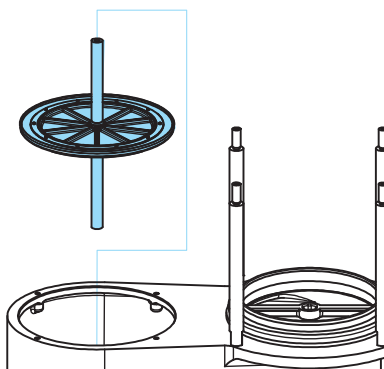
PRESSURE SIDE DISASSEMBLY

- 1 Follow steps 1 & 2 in SECTION B to expose the pressure pallet. Remove the pressure relief pallet and set aside.



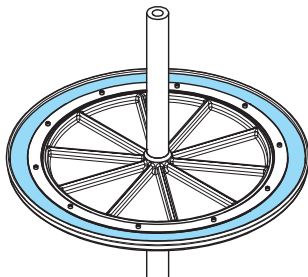
VACUUM SIDE DISASSEMBLY

- 2 Follow steps 4 & 5 in SECTION B to expose the vacuum pallet. Remove the vacuum relief pallet and set aside.



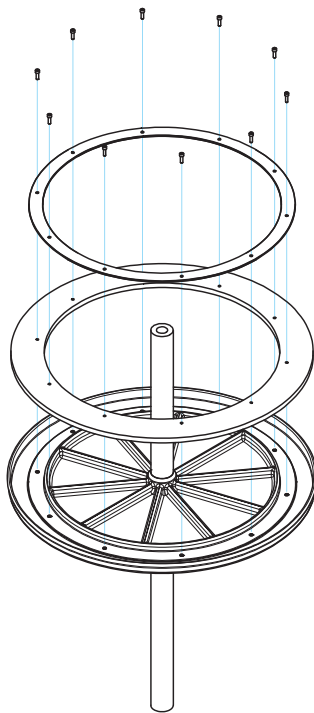
INSPECTION, REPLACEMENT AND GREASING OF SEALS

- 3 Inspect all of the removed seals. A ring shaped indentation from the pallet seat may be present in the seals, this is normal and improves the sealing performance of the valve. The seal should be replaced if there are signs of cracking, erosion, swelling, multiple intersecting indentations, etc.



- 4 If the seal does not require replacing, proceed to step #8

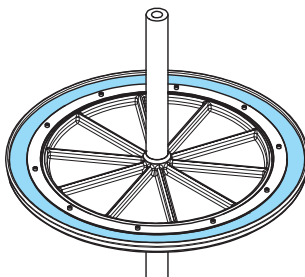
- 5 If the seal requires replacing, remove the ten (10 qty) #4-40 socket head cap screws securing the gasket retainer ring onto the pallet using a 3/32" Allen key. Place the screws in a safe location. Remove the gasket retainer ring to allow access for removing the gasket.



- 6 Entirely coat the new seal with a thin coating of 4561 Severe Service Grease to assist with installation.
- 7 Apply a drop of blue thread locker to each blind threaded hole in the pallet, then position the new seal and gasket retainer ring, ensuring the holes are aligned with the threaded inserts. Using a 3/32" Allen key, carefully reinstall the #4-40 socket head cap screws, tightening gradually in sequence until all fasteners are finger-tight and the gasket is fully seated.

CAUTION: DO NOT EXCEED A MAXIMUM TORQUE OF 30 OZ-IN ON THE FASTENERS (FINGER-TIGHT).

- 8 Clean all surfaces and apply an even coating of 4561 Severe Service Grease to the sealing surface.



NOTE: PRESSURE AND VACUUM PATTERNS ARE NOT INTERCHANGEABLE. GUIDE RODS ARE COLOUR-CODED TO AID IN IDENTIFICATION.

PALLET IDENTIFICATION		
	Top Guide	Bottom Guide
Pressure - Standard	Green	Red
Vacuum - Standard	Gold	Red

PART D: TROUBLESHOOTING

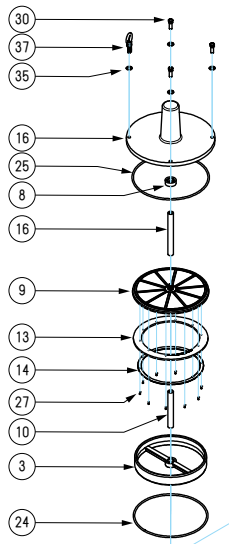
PROBLEM: Vent is Leaking or Frequently Opening

Symptom Of	Solution
Unlubricated Pressure / Vacuum Seal	Perform the inspection and re-lubrication procedures detailed in SECTION C.
Worn or Damaged Pressure Vacuum Seal	
Set pressure set too close to operating pressure	Ensure that the set pressure of the Series 6000 PVRV is sufficiently above the operating pressure of the tank.

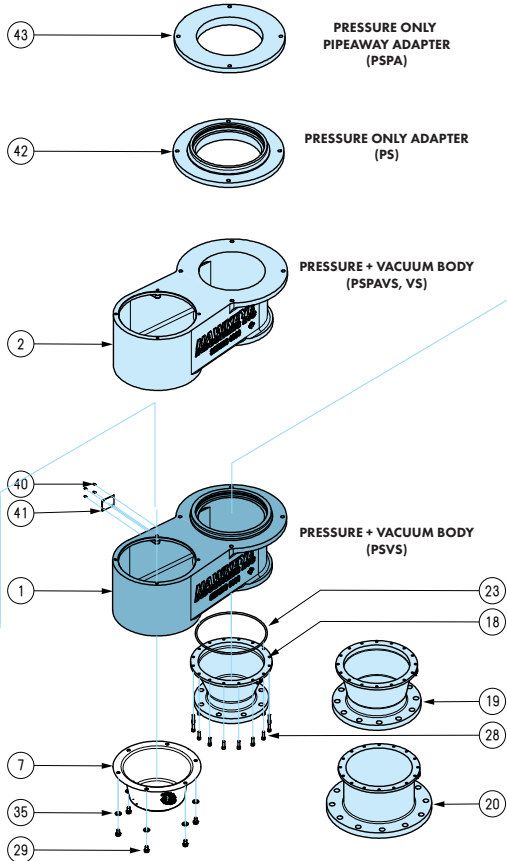
PROBLEM: Vent is not opening

Symptom Of	Solution
Debris blocking action	Ensure the vent cavity is clear of debris and obstructions.
Stuck Pressure or Vacuum Pallet	Ensure the pressure and vacuum pallets are free to move and are free from ice.
Set pressure set too far from operating pressure	Ensure that the set pressure of the Series 6000 PVRV is sufficiently below the desired relieving pressure and the design pressure of the tank.

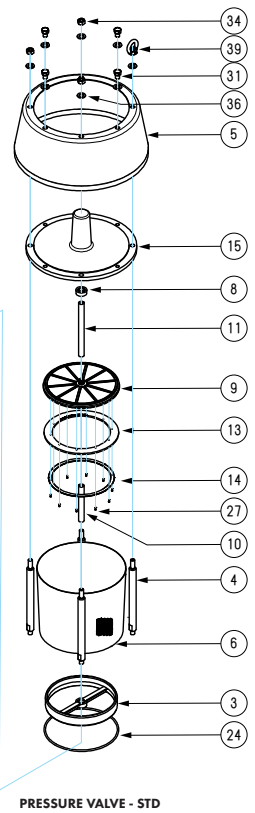
EXPLODED VIEW AND PARTS LIST



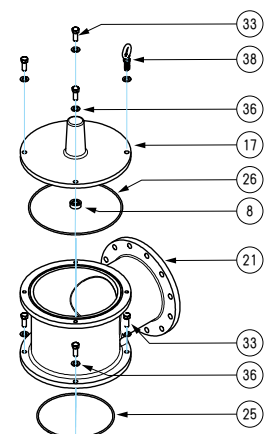
VACUUM VALVE - STD



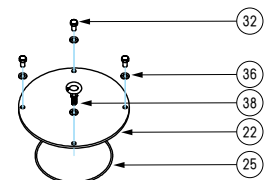
MOUNTING RISERS
(ALL CONFIGURATIONS)



PRESSURE VALVE - STD



PIPEAWAY
(REPLACES 4, 6, 15)



VAC. ONLY COVER
(REPLACES ALL OF PRESSURE VALVE)

#	Part Name	Part #	Material	#	Part Name	Part #	Material	#	Part Name	Part #	Material
1	PVRV Body – STD	220.312.010	319 Al	19	PVRV Nozzle, 10"	220.310.400	319 Al	37	1/2-13 UNC x 1-1/2 Shldr Eye Bolt	010.076.020	18-8 SS
2	PVRV Body – Pipe-Away/Vacuum-Only	220.312.010	319 Al	20	PVRV Nozzle, 12"	220.312.400	319 Al	38	3/4-10 UNC x 2 Shldr Eye Bolt	010.076.030	18-8 SS
3	Relief Pallet Seat	220.312.320	GF PA66	21	Pipe Away Body	220.312.000	319 Al	39	3/4-10 UNC Eye Nut	010.0A6.160	18-8 SS
4	Pres. Stand-off	220.312.100	6061 Al	22	Vac.-Only Cover	220.312.090	5052 Al	40	#4x5/16 ZP Drive Screw	010.0F6.020	CS ZP
5	Pres. Hood	220.312.530	3003 Al	23	454 O-Ring	010.338.390	FKM	41	Vapour Control Tag	010.909.060	6061 Al
6	Pres. Screen	220.812.620	304 SS	24	455 O-Ring	010.338.400	FKM	42	PVRV Pres.-Only Adapter – STD	220.312.110	319 Al
7	Vac. Screen	220.812.610	304 SS	25	456 O-Ring	010.338.410	FKM	43	PVRV Pres.-Only Adapter – Pipe Away	220.312.120	319 Al
8	Guide Insert	220.812.310	GF PA66	26	462 O-Ring	010.338.420	FKM				
9	Relief Pallet	220.812.330	GF PA66	27	#4-40 UNC x 3/8 Hex Socket Head Bolt	010.006.020	18-8 SS				
10	Lower Pallet Guide Rod (Red)	220.312.050	6061 Al	28	3/8-16 UNC x 1-1/4 Hex Socket Head Bolt	010.006.300	18-8 SS				
11	Pres. Pallet Upper Guide Rod (Green)	220.312.080	6061 Al	29	1/2-13 UNC x 3/4 Hex Bolt	010.006.240	18-8 SS				
12	Vac. Pallet Upper Guide Rod (Gold)	220.312.060	6061 Al	30	1/2-13 UNC x 1-1/2 Hex Bolt	010.006.250	18-8 SS				
13	Relief Pallet Gasket	220.212.XXX	EFKM/NEO-CORE/VITOCORE/EPTFE	31	3/4-10 UNC x 1 Hex Bolt	010.006.260	18-8 SS				
14	Relief Pallet Gasket Retainer	220.812.340	316 SS	32	3/4-10 UNC x 1-1/2 Hex Bolt	010.006.270	18-8 SS				
15	Pres. Cover	220.312.040	319 Al	33	3/4-10 UNC x 2 Hex Bolt	010.006.280	18-8 SS				
16	Vac. Cover	220.312.030	319 Al	34	3/4-10 UNC Hex Nut	010.0A6.150	18-8 SS				
17	Pipe Away Pres. Cover	220.312.070	319 Al	35	1/2 SAE Flat Washer	010.0B6.010	18-8 SS				
18	PVRV Nozzle, 8"	220.308.400	319 Al	36	3/4 SAE Flat Washer	010.0B6.150	18-8 SS				



2110 70 Ave NW
Edmonton, AB, Canada T6P 1N6
Toll Free: (800) 910-4295
Phone: (780) 490-4295
Fax: (780) 490-4290
www.hawk-eye.com
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