



NATIONAL TRANSPORTATION SAFETY BOARD  
**Investigative Hearing**

Norfolk Southern Railway general merchandise freight train 32N  
derailment with subsequent hazardous material release and fires,  
in East Palestine, Ohio, on February 3, 2023

<b>GROUP</b>	<b>F</b>
<b>EXHIBIT</b>	
21	

Agency / Organization

**Midland Manufacturing**

Title

**Pressure Relief Device Model A-3400 Series  
Description.**

## Model A-3400

Pressure Relief Valve

April 28, 2015



### TECHNICAL SPECIFICATIONS

- Start-to-Discharge Pressure: REFER TO TABLE; +/- 3% or 3 psig, whichever is larger
- Vapor-Tight Pressure: REFER TO TABLE
- Certified Capacity at Flow Rating Pressure: REFER TO TABLE
- Flow Rating Pressure: REFER TO TABLE
- Effective Orifice Area: 7.85 in<sup>2</sup>
- Discharge Coefficient (Kd): REFER TO TABLE
- Max. Operating Temp.: 150°F
- Min. Operating Temp.: -30°F
- Mounting Studs: Four (x4) 7/8"-9 UNC
- Mounting Stud Torque: 150 +/-10 ft-lb
- Top Guide Mounting Stud Torque: 93 ft-lb for B7 alloy steel; 43 ft-lb for 18-8
- Stem/Retainer Locknut Torque: 100-120 ft-lb
- Mounting Flange: 7-5/16 in<sup>2</sup> x 1-1/4" thick; Four (x4) ø15/16" holes on ø8 B.C.

- Valve Weight: 70 lb
- Stem Adjusting Nut/Locknut Torque: 150 +/-10 ft-lb
- Mounting Torque Configuration:  
O.D.: 6.745 +/- 0.003  
I.D.: 6.005 +/- 0.003
- AAR Approval #: PRD 132003

### Notes

- Alternate O-ring materials available



# Model A-3400

## Pressure Relief Valve

April 28, 2015

VALVE ASSEMBLY	SPRING	NAMEPLATE	START-TO-DISCHARGE	VAPOR TIGHT	FLOW RATE		DISCHARGE COEFFICIENT
					RATE	FLOW RATED PRESSURE	
MODEL	P/N	P/N	(PSIG)	(PSIG)	(SCFM)	(PSIG)	(Kd)
A-3450	34-150-AS	34-18-SS	150	135	20500	165	0.79
A-34225	34-225-AS	34-26-SS	225	210	25063	247	0.66
A-34247	34-255-AS	34-23-SS	247.5	235	22598	271	0.55
A-3455	34-255-AS	34-19-SS	255	240	26167	280	0.62
A-3480	34-280-AS	34-17-SS	280	265	24440	308	0.53
A-3400	34-280-AS	34-20-SS	300	285	27930	330	0.56
A-3430	34-280-AS	34-25-SS	330	315	31771	363	0.58

ITEM	QTY	PART NAME	PART NUMBER	MATERIAL
1	1	TOP GUIDE	34-1-XS	STEEL w/SS INSERT
2	1	STEM	31-2-SS	STAINLESS STEEL
3	1	RETAINER	31-3-CS	STEEL, PLATED
4	1	BODY	34-410-CS	STEEL
5	1	SPRING	SEE TABLE	ALLOY STEEL
6	1	FOLLOWER	34-6-CS	STEEL, PLATED
7	—	-	-	-
8	1	LOCK NUT	23-8-CS	STEEL, PLATED
9	1	WASHER	23-9-NE	NEOPRENE
10	1	SEAT O-RING	27-11-BN*	BUNA-N
11	1	STEM O-RING	31-11-BN*	BUNA-N
12	1	ADJUSTMENT NUT	23-12-CS	STEEL, PLATED
13	1	LOCK NUT	23-13-CS	STEEL, PLATED
14	—	-	-	-
15	4	HEX NUT	10-15-CS	STEEL, PLATED
16	2	WIRE SEAL	22-72-PB*	SS/LEAD
17	1	NAMEPLATE	SEE TABLE	STAINLESS STEEL

\* ALTERNATE MATERIAL AVAILABLE

