

HR-1-4 Hopper

(Replaces HRM-1 Hopper)

1. Description

[See Figure 1.](#) The Nordson HR-1-4 hopper stores and fluidizes powder coatings. It includes a pickup tube and pump adapter for a Nordson powder pump, an adapter for a vent hose, and a six-foot length of vent hose. The powder pump must be ordered separately.

The HR-1-4 hopper replaces the HRM-1 hopper. A kit is available to rework the HRM-1 hopper into the HR-1-4 hopper. Refer to Note A in *Parts* for more information.

This hopper is used as

- an option for the Nordson configurable dolly system
- a laboratory testing unit
- a component of a Versa-Spray or Tribomatic demonstration unit

The hopper can hold approximately 1.8 kg (3.9 lbs) of fluidized powder. Typical fluidizing air pressure is approximately 0.2 bar (3 psi). Fluidizing air pressure is controlled by an external regulator.

1. Description (contd)

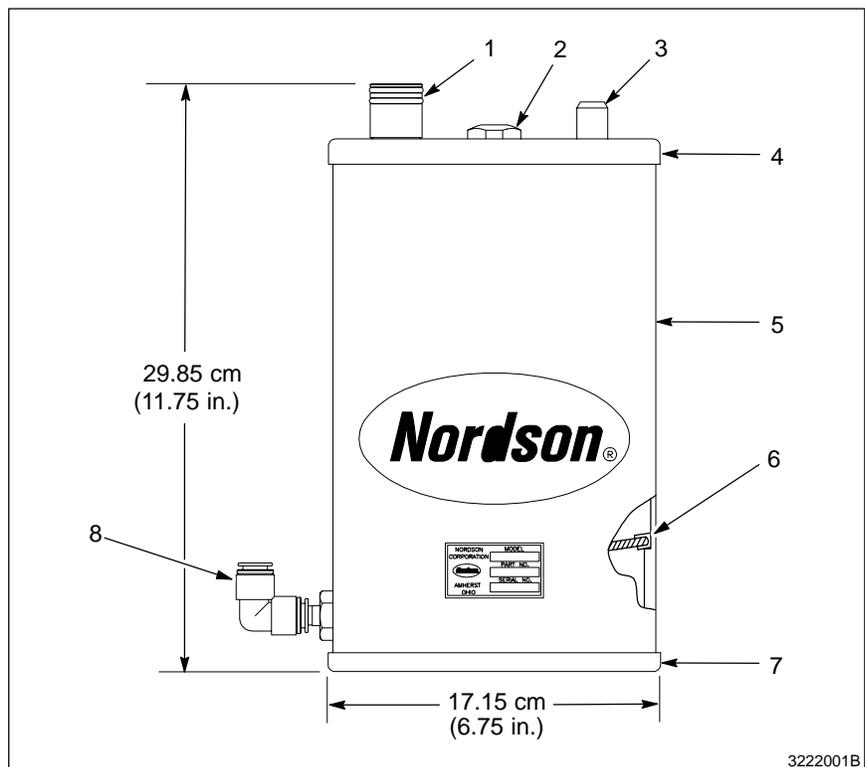


Fig. 1 HR-1-4 Hopper

- | | |
|------------------|---------------------------|
| 1. Pump adapter | 5. Hopper body |
| 2. Clamping knob | 6. Fluidizing plate |
| 3. Vent tube | 7. Hopper base |
| 4. Hopper lid | 8. Fluidizing air fitting |

2. Installation

Figure 2 illustrates a typical HR-1-4 hopper installation. The mounting kit, powder pump, feed hose, and air tubing are optional and must be ordered separately.

1. Install the bracket (3) on a dolly or panel with the screws (5), nuts (1), and lockwashers (2). Do not fully tighten the screws (5).
2. Secure the strap (6) to the bracket (3) with the strap mount washer (4) and tighten the screws (5). Secure the hopper (9) to the bracket with the strap.

3. Clip the ground clamp (10) to another piece of grounded equipment or to a true earth ground.
4. Install the spiral-cut tubing (8) over the end of the vent hose (7). Connect the vent hose to the hopper vent tube. Connect the other end of the vent hose to a powder collection device.
5. Route 10-mm tubing (17) from a source of regulated air to the tube fitting at the bottom of the hopper.

NOTE: A 10-mm stem to 6-mm tube fitting (18) is included with the hopper for use with 6-mm tubing.

6. Install a powder pump (14) on the hopper pump adapter and connect the feed hose (11) and 6-mm atomizing and flow-rate air tubing (15 and 16) to the pump fittings.

3. Operation

Air pressure to the hopper and powder pump is controlled by gun control unit regulators. The air supply must be clean and dry.

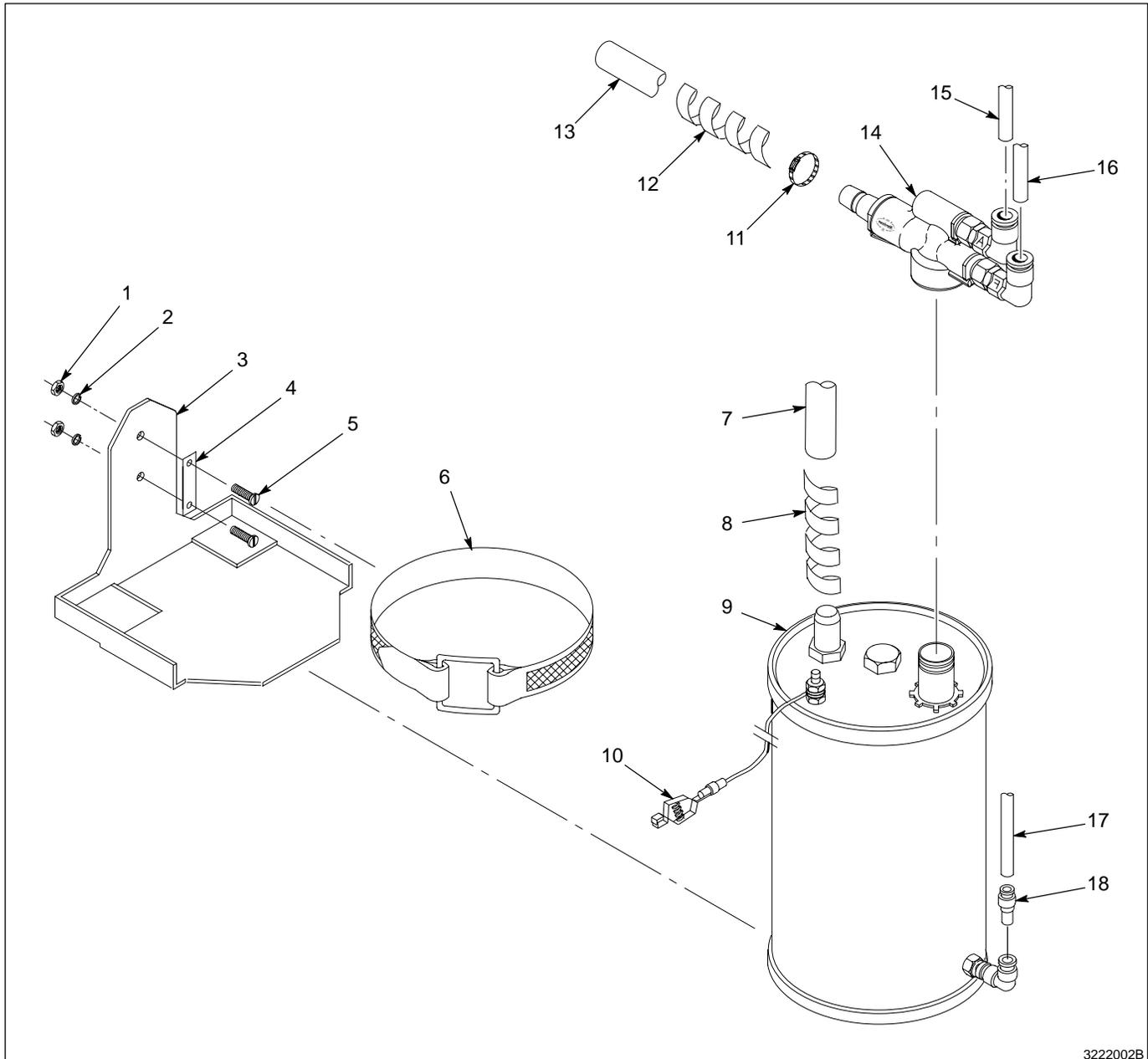
1. [See Figure 1](#). Loosen the clamping knob (2) and remove the hopper lid (4).
2. Check the fluidizing plate (6) at the bottom of the hopper. The side of the plate marked *THIS SIDE DOWN* must face the hopper base (7).
3. Fill the hopper two-thirds full of powder. Do not overfill it; room must be left to allow the powder to expand when it is fluidized.
4. Install the lid and tighten the clamping knob.
5. Check the air tubing, vent hose, and feed hose connections. Make sure the hopper is grounded.



WARNING: The hopper and all other conductive equipment in the spray area must be connected to a true earth ground. An electrical charge can build up in ungrounded equipment and cause a severe shock, fire, or explosion when discharged.

6. Set fluidizing air pressure to 0.2 bar (3 psi). Wait a few minutes for the powder to fluidize before starting to coat parts. The powder should look like it is boiling gently and no clumps should be visible. Adjust fluidizing air pressure as necessary.

3. Operation (contd.)



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Fig. 2 Installing HR-1-4 Hopper

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|------------------------------------|-----------------------------------|--|
| 1. Nuts ¹ | 7. Vent hose ² | 13. Clamp ³ |
| 2. Lockwashers ¹ | 8. Spiral cut tubing ² | 14. Powder pump ³ |
| 3. Bracket ¹ | 9. Hopper | 15. Flow-rate air tubing (6 mm) ³ |
| 4. Strap mount washer ¹ | 10. Ground clamp ² | 16. Atomizing air tubing (6mm) ³ |
| 5. Screws ¹ | 11. Feed hose ³ | 17. Fluidizing air tubing (10 mm) ³ |
| 6. Strap ¹ | 12. Spiral wrap ³ | 18. 10 mm-stem to-6 mm tube reducer ² |

Note 1: Mounting kit parts

Note 2: Included with hopper

Note 3: Optional parts

Changing Colors

1. Remove the pump from the hopper. Clean the pump and powder spray gun as described in their manuals. Blow out the feed hose with compressed air.
2. If you are reclaiming the used powder, perform the color change procedures in your booth manual.
3. Disconnect the vent hose from the hopper. Blow out the vent hose with compressed air.
4. Remove the lid and empty the powder from the hopper. Clean the lid, pump adapter, pickup tube, and hopper body with an OSHA-approved air gun and a clean, lint-free cloth.
5. Examine the fluidizing plate for stains that could indicate moisture or oil contamination. Replace the fluidizing plate if it is contaminated and check the air supply filters and dryer.

4. Preventive Maintenance

Add the following procedures to your powder coating system maintenance schedule.

Daily

Check the vent hose and air tubing connections. Check the ground connection. Make sure your system air supply is clean and dry.

Weekly

Disassemble the hopper and clean all parts with an OSHA-approved air gun and clean, lint-free cloth. Check the fluidizing plate for signs of air contamination.



WARNING: When the hopper is assembled, check for continuity between the hopper base and the lid ground stud with an ohmmeter. If no continuity exists, disassemble the hopper and correct the problem.

Monthly

Perform the weekly maintenance procedure. Check the fluidizing plate U-channel gasket, pump adapter O-rings, lid gasket, and base gasket. Replace cracked or severely deformed items. Check the pickup tube and replace it if it is worn.

5. Parts

See Figure 3.

Item	Part	Description	Quantity	Note
—	139 364	Hopper, mini, HR-1-4	1	
1	139 375	• Tube, vent, hopper	1	
2	171 967	• Gasket, lid, HR-1-4	1	A, B
3	117 287	• Nut, lock, bulkhead, $\frac{3}{4}$ -16 in., steel	1	
4	139 371	• Rod, support	1	
5	171 964	• Plate, fluidizing, HR-1-4	1	A, C
6	171 963	• Gasket, U-channel, HR-1-4	1	A, C
7	139 367	• Gasket, lid	1	
8	139 365	• Spacer, fluidizing plate	1	
9	981 890	• Screw, with seal, #10-24 x 0.50 in.	1	
10	983 401	• Washer, lock, m, split, M5, zinc-plated steel	3	
11	139 366	• Base, hopper, HR-1-4	1	
12	169 085	• Adapter, stem, restricted	1	
13	972 259	• Connector, elbow, 10-mm tube x 10-mm tube	1	
14	169 189	• Tube, pickup, with pump adapter	1	
15	169 090	• • Tube, pickup, 0.360 ID x 8 in.	1	
16	164 063	• • Mount, pump	1	
17	941 145	• • O-ring, silicone, conduct, 0.625 x 0.812 x 0.093 in.	2	
18	983 055	• • Washer, pump mount	1	
19	939 613	• • Locknut, conduit, $\frac{3}{4}$ in. NPS	1	
20	152 227	• • Adapter, pump, vibratory box feeder	1	
21	941 185	• • O-ring, silicone, conduct, 0.875 x 1.062 x 0.093 in.	2	
22	139 374	• Knob, clamping	1	
23	171 966	• Lid, hopper, HR-1-4	1	A, B
24	139 377	• Wire, with clamp, ground	1	
NS	933 054	• • Terminal, ringtong, insulated, 6-14, 10	2	
NS	931 191	• • Wire, vinyl, 14 awg, green with yellow	AR	
NS	939 458	• • Clip, ground	1	

NOTE A: Included in service kit, part 169 088. Use kit to rework HRM-1 hopper into HR-1-4 hopper.

B: Included in lid with gasket kit, part 171 968.

C: Included in fluidizing plate with gasket kit, part 171 965.

NS: Not Shown

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Item	Part	Description	Quantity	Note
25	982 126	• Screw, pan head, M5 x25 mm, brass	1	
26	984 702	• Nut, hex, M5, brass	2	
27	983 021	• Washer, flat, external, 0.203 x 0.406 x 0.040 in., brass	1	
28	240 674	• Tag, ground	1	
29	972 262	• Reducer, 10 mm stem x 6 mm tube	1	D
30	139 372	• Body, hopper	1	
NS	900 650	• Tubing, powder, 12.7 mm (0.5 in.), blue	AR	E
NS	900 517	• Tubing, poly, spiral-cut, 0.62 in. ID	AR	E

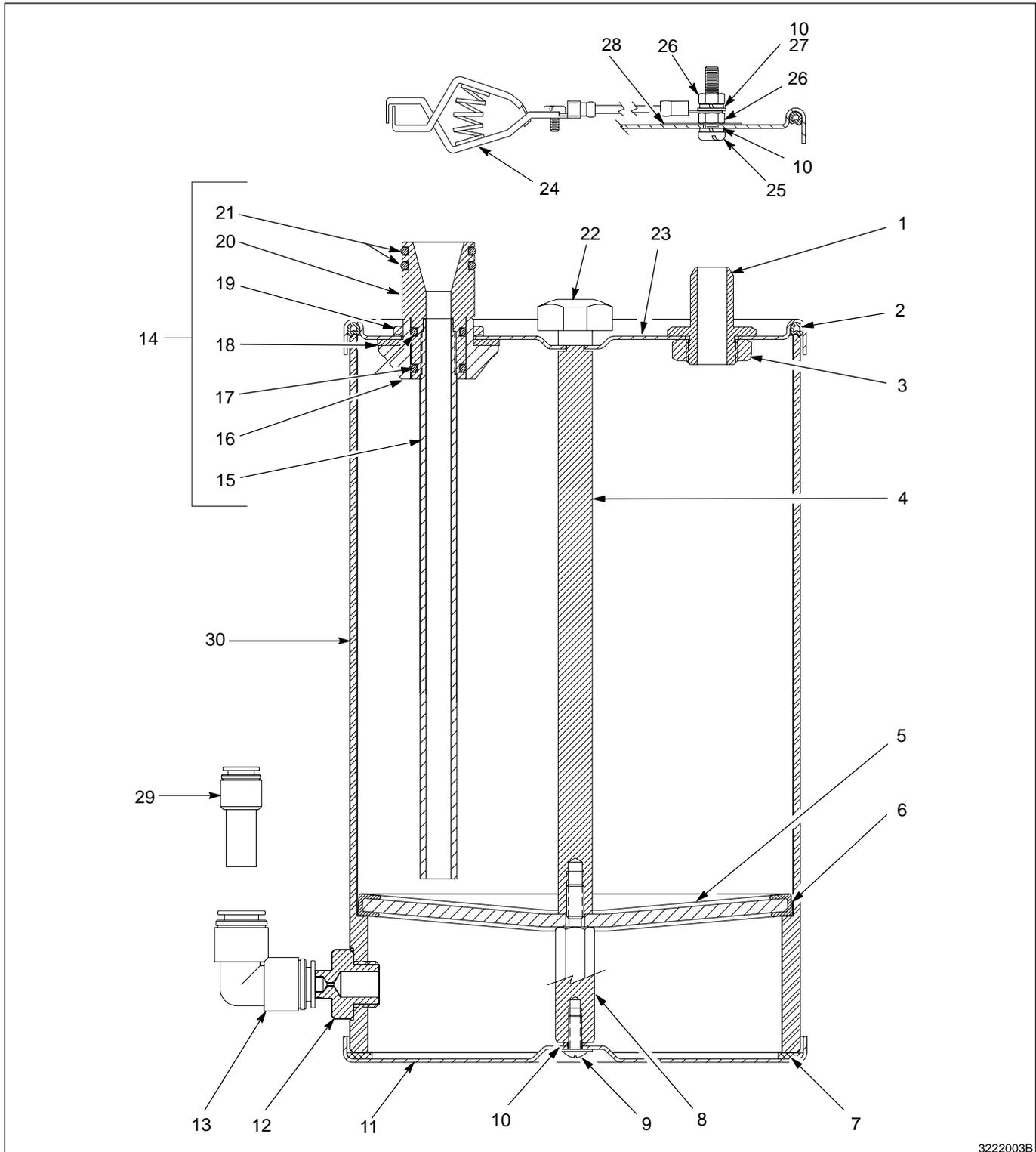
NOTE D: Shipped with hopper, use to connect 6-mm tubing to elbow connector item 12.

E: Order in one-foot increments.

AR: As Required

NS: Not Shown

5. Parts (contd)



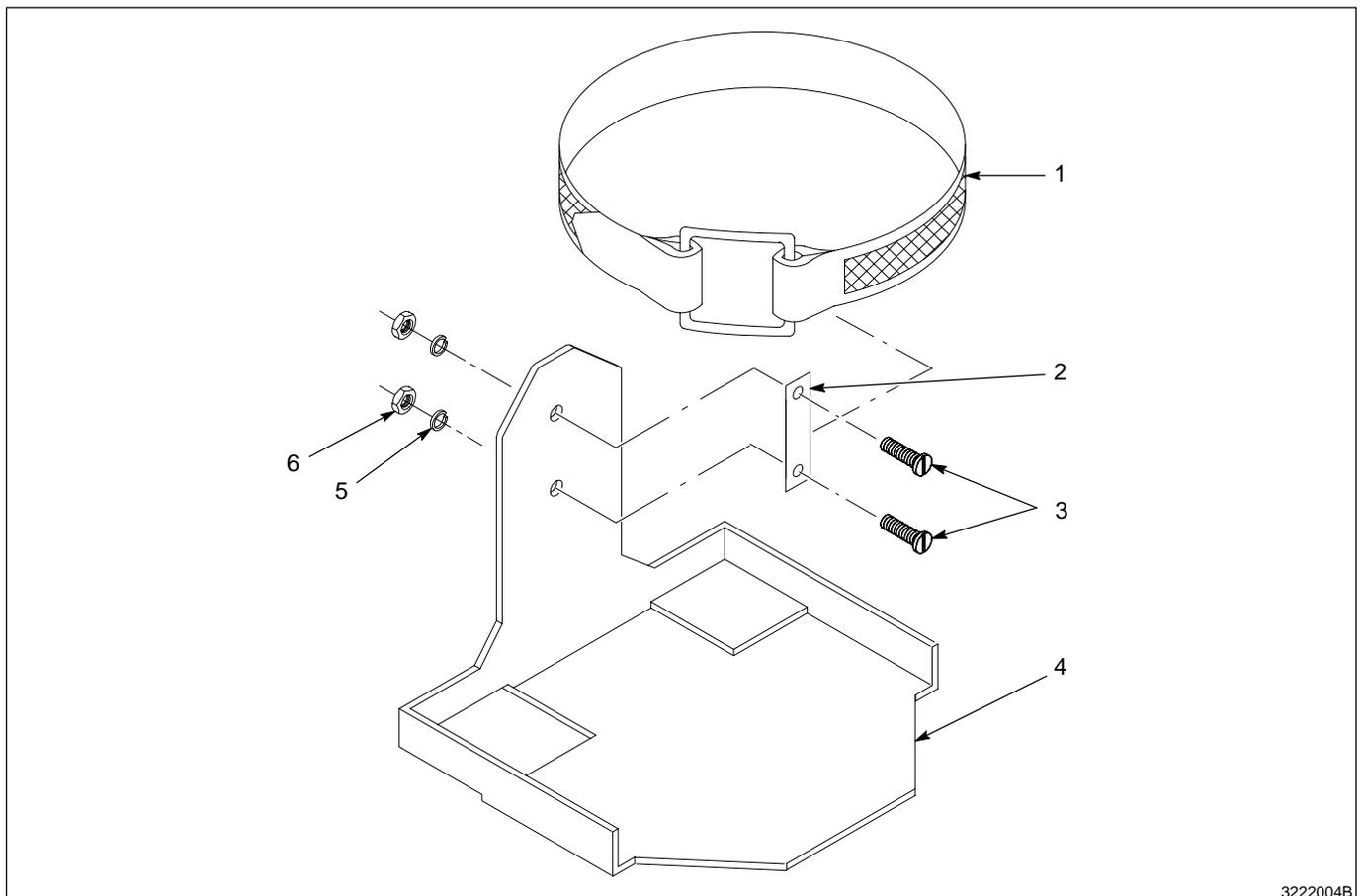
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Fig. 3 Cutaway View of HR-1-4 Hopper

6. Hopper Mounting Kit

This kit can be used for both the HRM-1 and HR-1-4 hoppers.

Item	Part	Description	Quantity	Note
—	141 047	Installation kit, hopper, HRM-1	1	
1	246 749	• Strap, cinching	1	
2	246 747	• Washer, mount strap	1	
3	982 244	• Scr, pan, slotted, M5 x 35, zinc	2	
4	166 777	• Bracket, mounting, hopper	1	
5	983 127	• Washer, lock, internal, M5, zinc	2	
6	984 706	• Nut, hex, M5, zinc-plated steel	2	



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Fig. 4 Mounting Kit

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