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TRIBOMATIC® HOPPERS

PUBLICATION P/N 104 368

Nordson®

NORDSON CORPORATION

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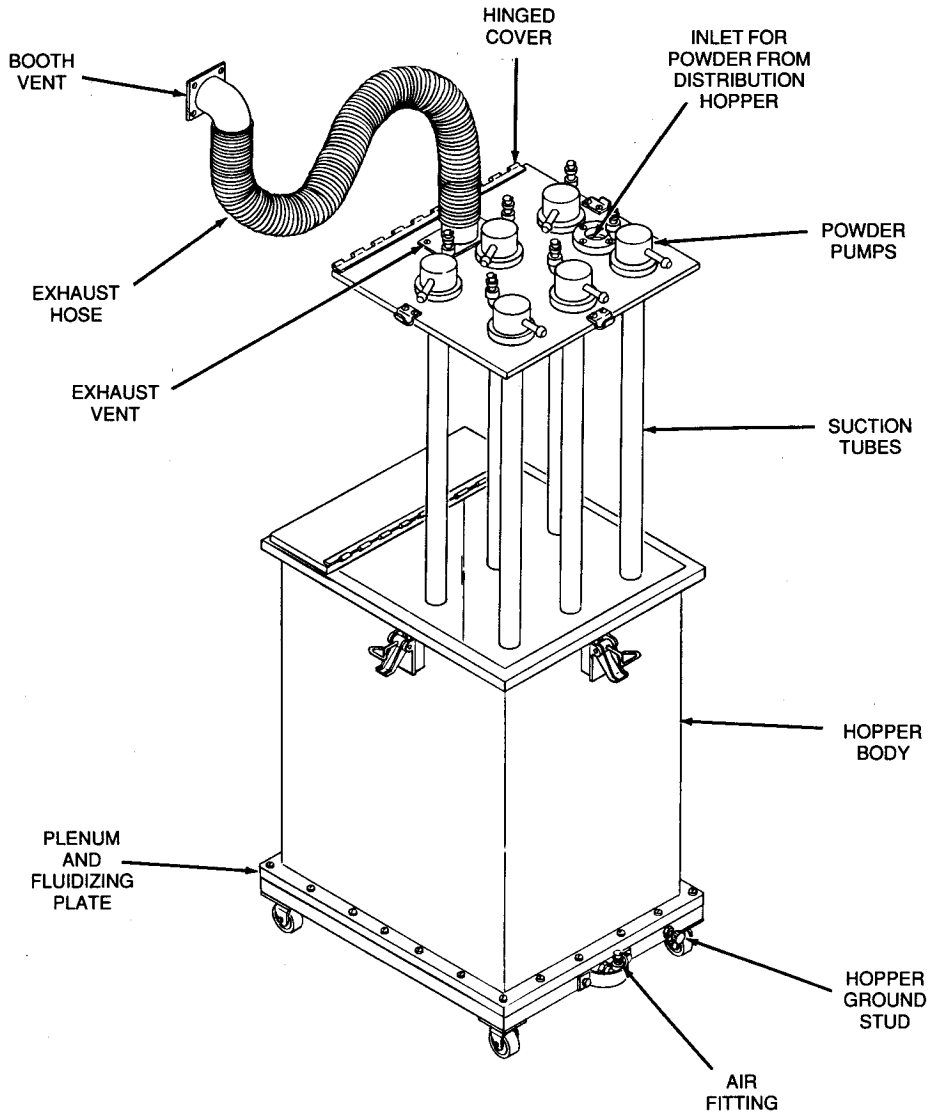

Figure 1- Hopper And Pump
(60 Liter Hopper Shown)

The TRIBOMATIC® powder feed hoppers are manufactured in sizes ranging from 2 liters to 280 liters. They are constructed of stainless steel and are equipped with a fluidizing plate, plenum and air fitting, and a cover fitted with powder pump mountings and suction tubes. The larger hoppers (18 liters and above) come equipped with exhaust vent fittings for exhausting the fluidizing air into the booth while the 2 liter hopper has integral exhaust filters.

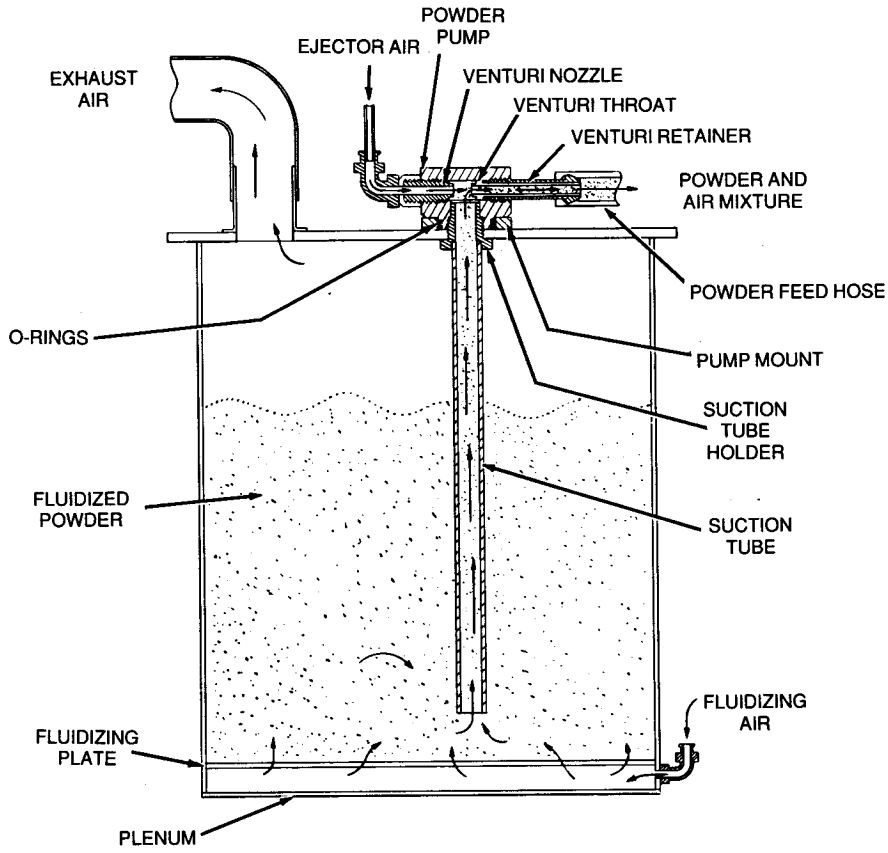

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Figure 2- Hopper And Pump Operation

The hoppers hold a supply of powder and fluidizes it by mixing the powder with air supplied through the porous fluidizing plate. The powder pumps pull the fluidized powder out of the hopper and force the powder and air mixture through the powder feed hose to the spray guns.

Fluidizing air pressure is controlled by a regulator valve on the control console. Refer to the Control Module Manual for further system information.

SECTION 3
INSTALLATION

1. Install hopper close enough to powder booth so that exhaust hose, if used, can be connected to booth.

2. Connect a ground strap between hopper and earth ground. Secure ground strap to hopper with one of machine screws securing plenum to body or to ground stud on plenum.

3. Install suction tubes into tube holders on bottom of powder pump and twist and press pumps into pump mountings on cover. Plug any unused pump mountings with plastic caps (see parts lists).

NOTE: Suction tubes should extend to within 1 inch (25.4 mm) of fluidizing plate.

4. Install exhaust hose, if used, between hopper and booth.

NOTE: Local codes may require that feed hopper be exhausted into booth. Refer to parts lists for optional exhaust vent fittings and hose.

5. Install fluidizing air tubing (blue, marked "F") into plenum air fitting. Make sure tubing path protects tubing from kinking or damage.

6. Install ejector air tubing (black, numbered to correspond with module) into pump air fitting. Make sure tubing path protects tubing from kinking or damage.

7. Install powder feed hose onto pump venturi throat holder. Connect to powder spray gun.

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SECTION 4
OPERATING INSTRUCTIONS

WARNING: Make sure all equipment in spray area is properly grounded. Ungrounded equipment can store a charge which when discharged could cause a fire or exploslon.

WARNING: Make sure fire detection system and all safety interlocks are working properly before starting spray operations.

STARTUP

1. Make sure feed hopper is two-thirds full of clean dry powder.
2. Check air supply filter/separator system and drain if necessary.
3. Start booth vent fans and powder recovery system.
4. Turn control console main switch to "ON" position.
5. Adjust fluidizing air pressure to ensure good fluidization of powder in feed hopper. Pressure should be between 5-15 PSI (.34-1 bar).
6. Turn individual gun control switches to "ON" position.
7. Adjust ejector and diffuser air pressures. Diffuser air pressure should always be greater than ejector air pressure. Refer to powder spray gun manual for instructions on setting pressures.
8. Check spray pattern and cloud density. Check charge meter for proper powder charging rate.
9. If using external low charge alarm, adjust sensitivity of alarm with rheostat knob below charge meter.
10. Test spray parts to be coated.

SHUTDOWN

1. Turn console main switch to "OFF" position.

2. Shut down conveyor, powder recovery system and booth vent fans.

SECTION 5
PREVENTIVE MAINTENANCE

WARNING: Never blow out chargetube with ground wire disconnected. A potentially hazardous charge can build up unles chargetube is grounded.

DAILY

1. Remove feed hose from powder pump, blow out hose, diffuser, and chargetube, disassemble pump and diffuser and clean parts. Check pump and diffuser parts for wear and replace worn parts. Never use a knife or other sharp object to clean parts as scratches wlll contribute to powder buildup and affect gun operation.

2. Clean booth with rubber squeegee or other non-sparking device. Leave booth fans on while cleaning. Check final filters and filter cartridges.

3. Clean optical fire detector lenses every 4 hours. Check operation of safety interlock systems at the beginning of each shift.

4. Remove powder transfer hoses from pumps and blow out with compressed air. Disassemble pumps and clean.

5. Check operation of air filters and separators and drain as necessary. Check operation of air dryers.

6. Check all ground connections in spray area.

WEEKLY

1. Clean booth, powder feed hoppers, distribution hoppers and collectors thoroughly.

2. Blow out exhaust vent hose from feed hopper into booth.

3. Clean spray area thoroughly. Wipe down control console with clean cloth.

4. Clean or replace cartridge filters and final filters as necessary.

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SECTION 6
TROUBLESHOOTING

NOTE: This guide does not cover all components of a system and therefore does not take into account all problems that could be encountered. Refer to gun and control console manuals for additional troubleshooting procedures.

PROBLEM:
Powder does not flow.

Probable Cause:	**Correction:**
1. Air supply to system is shut off.	1. Check air supply external shutoff valve, safety interlocks.
2. Blockage in ejector air tubing, pump, powder feed hose, diffuser, chargetube or sprayhead.	2. Disconnect ejector air tubing at pump. If air flows from tubing then blockage is in system from pump out to sprayhead. Disconnect powder feed hose and blow out hose. Disassemble pump and clean. Blow out diffuser and chargetube.
3. Control console or module valve malfunction.	3. Check for air flow at ejector tubing. If not present and pressure showing at module ejector air gauge, regulator or valve in console is faulty. Refer to control console manual.

PROBLEM:
Inadquate powder flow.

Probable Cause:	**Correction:**
1. Wet powder causing clogging of system.	1. Check powder supply, air filtering and drying systems. Replace powder supply if necessary.
2. Pressure settngs incorrect.	2. Check pressure settings, adjust if necessary. Refer to spray gun manual.
3. Fluidizing plate clogged.	3. Remove plate and clean or replace if necessary. Check air supply for contamination.

PROBLEM:
Powder puffing from gun.

Probable Cause:	**Correction:**
1. Ejector, diffuser or fluidizing air pressure improperly set.	1. Refer to spray gun manual and operating instructions in this manual for proper setting.
2. Powder feed hose I.D. too large or hose too short.	2. Change hose. Standard I.D. is 12mm, 10mm is available. Change hose length. Best results are obtained when hose is between 4-6 meters (13-20 ft.) long.
3. Gun control module delay valve malfunctioning.	3. Refer to control console manual.
4. Fluidizing plate partially clogged.	4. Remove plate and clean, replace if necessary.
5. Diffuser filter clogged.	5. Disassemble diffuser and clean, replace filter if necessary. Refer to gun manual.
6. Venturi plug worn out.	6. Replace venturi plug.

SECTION 7
DISASSEMBLY AND REPAIR

HOPPER

1. Shut down system. Disconnect ejector and fluidizing tubing and powder feed hoses. Vaccum powder from hopper.

2. Remove pumps from mountings. Disconnect exhaust vent hose, if used.

3. On some models, remove machine screws from body flange and separate plenum from body. Remove air fitting from plenum. Remove fluidizing plate. On newer models, heat joint with hot air (100° C, 212° F) and then separate body from plenum and fluidizing plate.

4. Clean hopper body and plenum with compressed air and clean cloth. Blow off fluidizing plate and wipe clean. Clean exhaust vent filter, if used.

5. Reassemble hopper. When regluing fluidizing plate to plenum and plenum to body, use glue 630 241 or equivalent. After assembly turn hopper upside down and apply a heavy load to the bottom. Allow glue to cure for 24 hours.

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SECTION 8
PARTS LISTS

INTRODUCTION

This illustrated parts list lists, illustrates, and describes all saleable assemblies, subassemblies, and detail parts for the Tribomatic® 2, 5, 18, 60, 150, and 280 liter powder hoppers. This parts list provides information for identifying and ordering parts. It also illustrates the assembly and disassembly relationship of those parts.

PARTS LISTED

In general, the assemblies and parts installed at the time of manufacture are listed and identified in the following list(s). Repair kits (when available) are listed at the end of this section. Parts which lose their identities by being welded or riveted, or joined in such a manner as to prohibit disassembly are not listed. Items made from raw stock or bulk items, such as wire, are not normally listed. When maintenance requires the listing of bulk items, they are listed within the parts lists using the bulk stock part number followed by the notation "**ASR**." This notation indicates that a bulk quantity part number appears within the parts list and the part should be ordered "as required" by the application in the quantity desired.

PARTS LISTS

The parts lists consist of five columns of information as explained below:

The **REF.** column provides the index numbers used to key a part to its location on the illustration associated with the parts list. The illustration associated with the parts list is referenced immediately above the list. A **NS** within this column indicates that the part listed is not shown on the illustration.

The letter in the **NOTE** column is a reference to an unusual circumstance for this particular part, and it is explained further at the end of the list.

The number in the **PART NO.** column indicates the Nordson part number for the part. A dash signifies that the item is a nonsaleable part or a nonsaleable subassembly of a saleable assembly.

The **DESCRIPTION** column gives the name of the part together with its dimensions and other physical properties, where appropriate. Indented parts are subgroups of a major assembly or sub-assembly and are indented to show higher assembly/installation relationship.

For example:

DESCRIPTION
Top Assembly or Installation.
. Assembly.
. . Detail Parts for above Assembly.
. . . Subassembly of above Detail Parts.
. . . . Detail parts of above subassembly.

The number in the **QTY** column indicates the quantity required per unit or assembly. When the quantity is not applicable, a dash appears in the column.

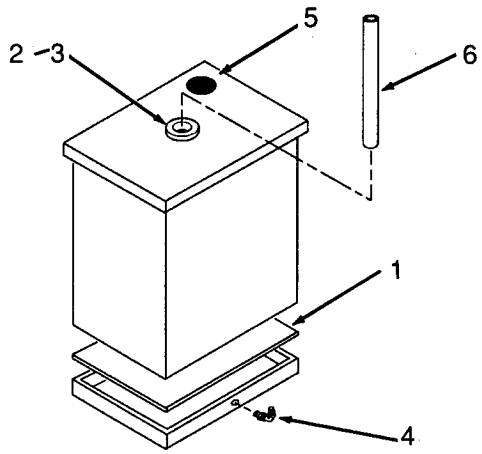

Figure 3 — Exploded View of 2 Liter Hopper

2 Liter Hopper

Note: Names of parts included in an assembly are indented after each assembly or sub-assembly.

Ref.	Note	Part No.	Description	Qty.
		630 656	Hopper, Powder, 2 Liter	1
1		630 663	• Plate, Fluid, 2 Liter	1
2		630 049	• Mount, Powder, Pump, Std.	1
3		982 091	• Screw, Pan Hd., Slt, M3 x 6	4
4		630 035	• Fitting, Air,	1
5		630 705	• • Filter, Hopper Vent	1
6	A	630 657	Tube, Suction, 2 Liter	1

Note (A) - Optional equipment, must be ordered separately.

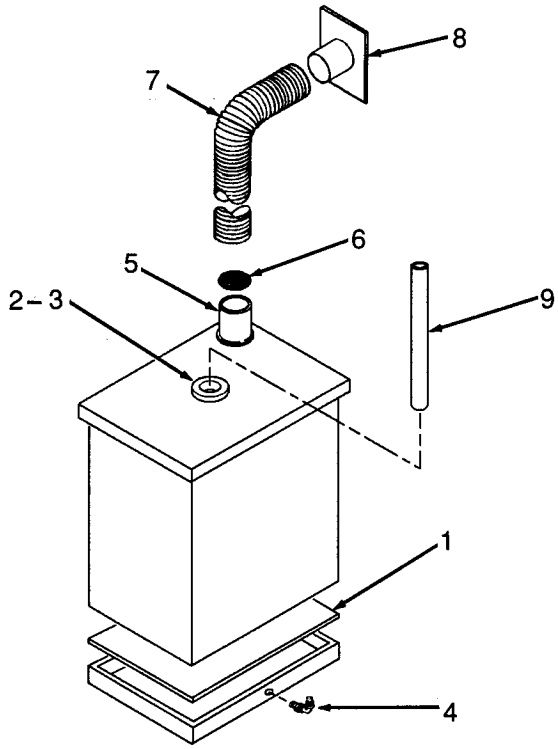

Figure 4 — Exploded View Of 5 Liter Hopper

5 Liter Hopper

Note: Names of parts included in an assembly are indented after each assembly or sub-assembly.

Ref.	Note	Part No.	Description	Qty.
		630 044	Hopper, Powder, 5 Liter	1
1		630 051	• Plate, Fluid, 5 Liter	1
2		630 049	• Mount, Powder, Pump, Std.	1
3		982 091	• Screw, Pan Hd., Slt, M3 x 6	4
4		630 035	• Fitting, Air,	1
5		630 277	• Mount, Exhaust, Hopper, 40mm	1
6		630 705	• • Filter, Hopper Vent	1
7	AB	630 226	Tubing, Exhaust, Vent, 40mm	ASR
8	B	630 228	Mount, Exhaust, Booth, 40mm	1
9	B	630 056	Tube, Suction, 5 Liter	1

Note (A) - Tubing is sold in 1 meter lengths.
Note (B) - Optional equipment, must be ordered separately.

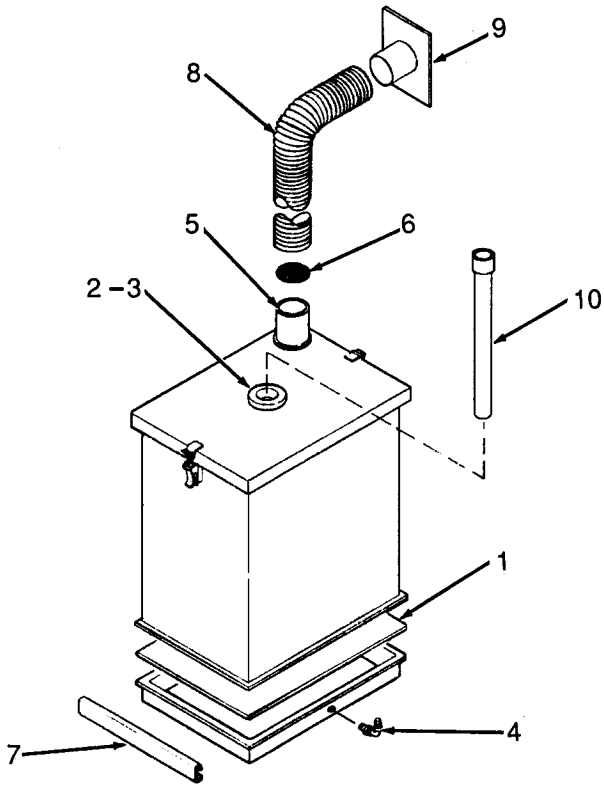

Figure 5 — Exploded View Of 18 Liter Hopper

18 Liter Hopper

Note: Names of parts included in an assembly are indented after each assembly or sub-assembly.

Ref.	Note	Part No.	Description	Qty.
		630 231	Hopper, Powder, 18 Liter	1
1		630 233	• Plate, Fluid, 18 Liter	1
2		630 049	• Mount, Powder, Pump, Std.	1
3		982 091	• Screw, Pan Hd., Slt, M3 x 6	4
4		630 035	• Fitting, Air,	1
5		630 277	• Mount, Hopper, Exhaust, 40mm	1
6		630 705	• • Filter, Hopper, Vent	1
7		630 245	• Channel, Locking (Complete Set)	1
8	AB	630 226	Tubing, Exhaust, Vent, 40mm	ASR
9	B	630 228	Mount, Exhaust, Booth, 40mm	1
10	B	630 234	Tube, Suction, 18 Liter Hopper	1

Note (A) - Tubing is sold in 1 meter lengths.
Note (B) - Optional equipment, must be ordered separately.

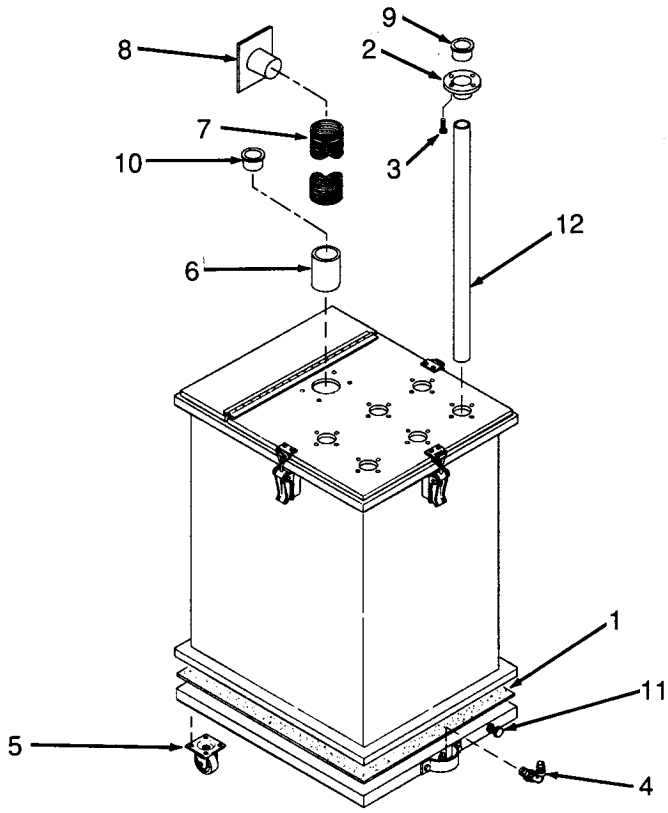

Figure 6 — Exploded View Of 60 Liter Hopper

60 Liter Hopper

Note: Names of parts included in an assembly are indented after each assembly or sub-assembly.

Ref.	Note	Part No.	Description	Qty.
		630 047	Hopper, Powder, 60 Liter	1
1		630 054	• Plate, Fluid, 60 Liter	1
2		630 049	• Mount, Powder, Pump, Std.	6
3		982 080	• Screw, Pan Hd., Slt, M3 x 10	24
4		630 035	• Fitting, Air	1
5		630 050	• Caster, Hopper	4
6		630 279	• Mount, Exhaust, Hopper, 50mm	2
7		630 227	• Tubing, Exhaust, Bulk, 50mm x 3M	1
8		630 297	• Mount, Exhaust, Booth, 50mm	1
9		630 087	• Plug, Plastic, Pump Mount	6
10		630 086	• Plug, Plastic, Exhaust Mount	2
11		630 073	• Knob, Ground Stud	1
NS		630 239	• Cable, Ground	1
12	A	630 059	Tube, Suction, 60 Liter	ASR

Note (A) - Optional equipment, must be ordered separately. Order one tube per pump.

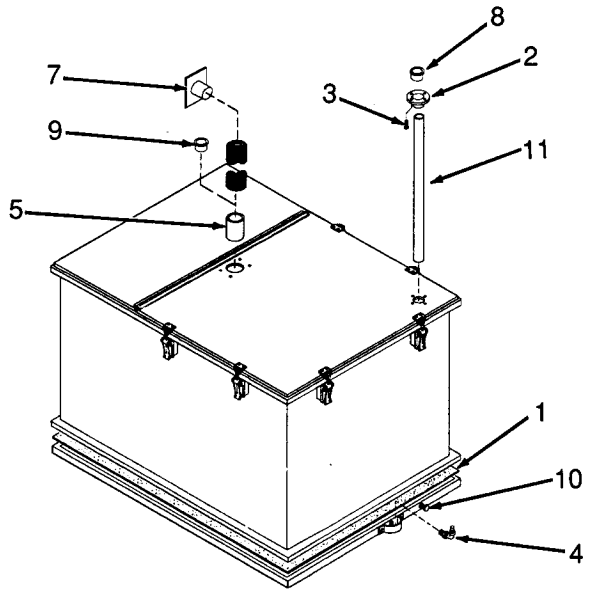

Figure 7 — Exploded View of 150 Liter Hopper

150 Liter Hopper

Note: Names of parts included in an assembly are indented after each assembly or sub-assembly.

Ref.	Note	Part No.	Description	Qty.
-		630 470	Hopper, Powder, 150 Liter	1
1		630 474	• Plate, Fluid, 150 Liter Hopper	1
2		630 049	• Mount, Pump, Std.	18
3		982 080	• Screw, Pan Hd., Slt, M3 x 10	72
4		630 035	• Fitting, Air	2
5		630 279	• Mount, Exhaust, Hopper, 50mm	2
6		630 227	• Tubing, Exhaust, Vent, 50mm x 3M	1
7		630 297	• Mount, Exhaust, Booth, 50mm	1
8		630 087	• Plug, Plastic, Pump Mount	18
9		630 086	• Plug, Plastic, Exhaust Mount	2
10		630 073	• Knob, Ground Stud	1
NS		630 239	• Cable, Ground	1
11	A	630 471	Tube, Suction, 150 Liter Hopper	ASR

Note (A) - Optional equipment, must be ordered separately. Order one suction tube per pump.

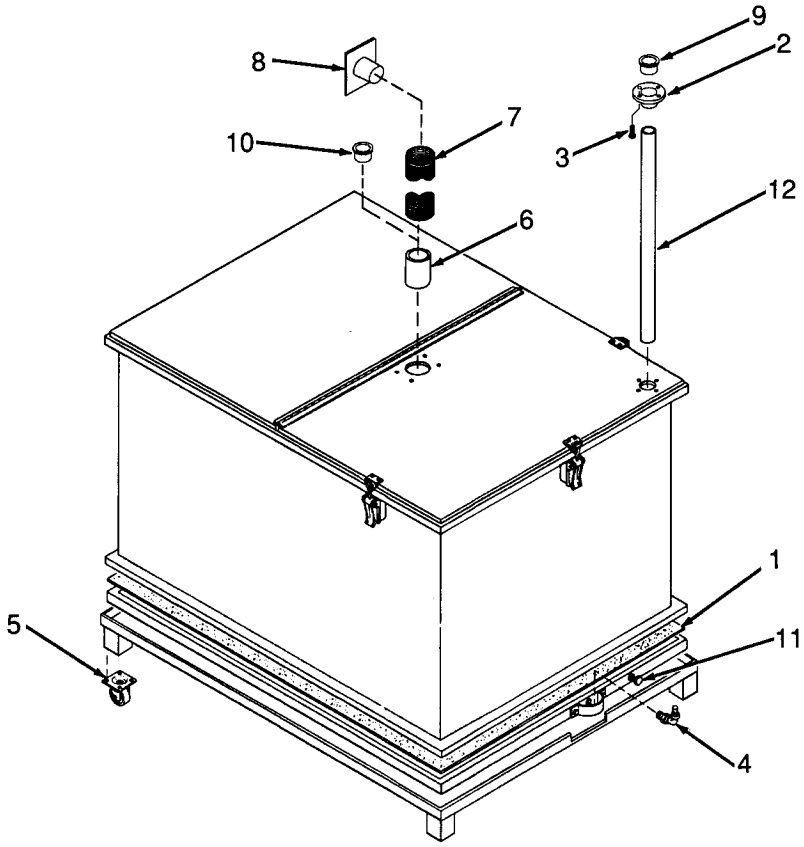

Figure 7 — Exploded View Of 280 Liter Hopper

280 Liter Hopper

Note: Names of parts included in an assembly are indented after each assembly or sub-assembly.

Ref.	Note	Part No.	Description	Qty.
		630 048	Hoppper, Powder, 280 Liter	1
1		630 055	• Plate, Fluid, 280 Liter	1
2		630 049	• Mount, Powder, Pump, Std.	18
3		982 080	• Screw, Pan Hd., Slt, M3 x 10	72
4		630 035	• Fitting, Air	2
5		630 084	• Caster, Hopper	4
6		630 279	• Mount, Exhaust, Hopper, 50mm	2
7		630 227	• Tubing, Exhaust, Vent, 50mm x 3M	1
8		630 297	• Mount, Exhaust, Booth, 50mm	1
9		630 087	• Plug, Plastic, Pump Mount	18
10		630 086	• Plug, Plastic, Exhaust Mount	2
11		630 073	• Knob, Ground Stud	1
NS		630 239	• Cable, Ground	1
12	A	630 060	Tube, Suction, 280 Liter	ASR

Note (A) - Optional equipment, must be ordered separately. Order one tube per pump.
NS - Not shown.