Rhino[®] SD/XD 125- or 160-mm Frames

Customer Product Manual Part 1607593-05 Issued 8/18

For parts and technical support, call the Industrial Coating Systems Customer Support Center at (800) 433-9319 or contact your local Nordson representative.

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Contact Us

Nordson Corporation welcomes requests for information, comments, and inquiries about its products. General information about Nordson can be found on the Internet using the following address: http://www.nordson.com.

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Change Record

Revision	Date	Change
01	8/15	New release.
02	5/17	Added additional frame colors.
03	8/18	Added 125- mm drum cart frame.
04	8/18	Added 1611490 guide plate kit.
05	8/18	Added 160- mm drum cart frame.

Rhino® SD/XD 125- or 160-mm Frames

Safety

Read and follow these safety instructions. Task- and equipment-specific warnings, cautions, and instructions are included in equipment documentation where appropriate.

Make sure all equipment documentation, including these instructions, is accessible to persons operating or servicing equipment.

Qualified Personnel

Equipment owners are responsible for making sure that Nordson equipment is installed, operated, and serviced by qualified personnel. Qualified personnel are those employees or contractors who are trained to safely perform their assigned tasks. They are familiar with all relevant safety rules and regulations and are physically capable of performing their assigned tasks.

Intended Use

Use of Nordson equipment in ways other than those described in the documentation supplied with the equipment may result in injury to persons or damage to property.

Some examples of unintended use of equipment include

- using incompatible materials
- making unauthorized modifications
- removing or bypassing safety guards or interlocks
- · using incompatible or damaged parts
- using unapproved auxiliary equipment
- operating equipment in excess of maximum ratings

Regulations and Approvals

Make sure all equipment is rated and approved for the environment in which it is used. Any approvals obtained for Nordson equipment will be voided if instructions for installation, operation, and service are not followed.

Personal Safety

To prevent injury follow these instructions.

- Do not operate or service equipment unless you are qualified.
- Do not operate equipment unless safety guards, doors, or covers are intact and automatic interlocks are operating properly. Do not bypass or disarm any safety devices.
- Keep clear of moving equipment. Before adjusting or servicing moving equipment, shut off the power supply and wait until the equipment comes to a complete stop. Lock out power and secure the equipment to prevent unexpected movement.
- Relieve (bleed off) hydraulic and pneumatic pressure before adjusting or servicing pressurized systems or components. Disconnect, lock out, and tag switches before servicing electrical equipment.
- While operating manual spray guns, make sure you are grounded.
 Wear electrically conductive gloves or a grounding strap connected to the gun handle or other true earth ground. Do not wear or carry metallic objects such as jewelry or tools.
- If you receive even a slight electrical shock, shut down all electrical or electrostatic equipment immediately. Do not restart the equipment until the problem has been identified and corrected.
- Obtain and read Safety Data Sheets (SDS) for all materials used.
 Follow the manufacturer's instructions for safe handling and use of materials, and use recommended personal protection devices.
- Make sure the spray area is adequately ventilated.
- To prevent injury, be aware of less-obvious dangers in the workplace that often cannot be completely eliminated, such as hot surfaces, sharp edges, energized electrical circuits, and moving parts that cannot be enclosed or otherwise guarded for practical reasons.

High-Pressure Fluids

High-pressure fluids, unless they are safely contained, are extremely hazardous. Always relieve fluid pressure before adjusting or servicing high-pressure equipment. A jet of high-pressure fluid can cut like a knife and cause serious bodily injury, amputation, or death. Fluids penetrating the skin can also cause toxic poisoning.

If you suffer a fluid injection injury, seek medical care immediately. If possible, provide a copy of the SDS for the injected fluid to the health care provider.

The National Spray Equipment Manufacturers Association has created a wallet card that you should carry when you are operating high-pressure spray equipment. These cards are supplied with your equipment. The following is the text of this card:



WARNING: Any injury caused by high pressure liquid can be serious. If you are injured or even suspect an injury:

- Go to an emergency room immediately.
- Tell the doctor that you suspect an injection injury.
- Show him this card
- Tell him what kind of material you were spraying

MEDICAL ALERT—AIRLESS SPRAY WOUNDS: NOTE TO PHYSICIAN

Injection in the skin is a serious traumatic injury. It is important to treat the injury surgically as soon as possible. Do not delay treatment to research toxicity. Toxicity is a concern with some exotic coatings injected directly into the bloodstream.

Consultation with a plastic surgeon or a reconstructive hand surgeon may be advisable.

The seriousness of the wound depends on where the injury is on the body, whether the substance hit something on its way in and deflected causing more damage, and many other variables including skin microflora residing in the paint or gun which are blasted into the wound. If the injected paint contains acrylic latex and titanium dioxide that damage the tissue's resistance to infection, bacterial growth will flourish. The treatment that doctors recommend for an injection injury to the hand includes immediate decompression of the closed vascular compartments of the hand to release the underlying tissue distended by the injected paint, judicious wound debridement, and immediate antibiotic treatment.

Fire Safety

To avoid a fire or explosion, follow these instructions.

- Ground all conductive equipment. Use only grounded air and fluid hoses. Check equipment and workpiece grounding devices regularly. Resistance to ground must not exceed one megohm.
- Shut down all equipment immediately if you notice static sparking or arcing. Do not restart the equipment until the cause has been identified and corrected.
- Do not smoke, weld, grind, or use open flames where flammable materials are being used or stored.
- Do not heat materials to temperatures above those recommended by the manufacturer. Make sure heat monitoring and limiting devices are working properly.

Fire Safety (contd)

- Provide adequate ventilation to prevent dangerous concentrations of volatile particles or vapors. Refer to local codes or your material SDS for guidance.
- Do not disconnect live electrical circuits when working with flammable materials. Shut off power at a disconnect switch first to prevent sparking.
- Know where emergency stop buttons, shutoff valves, and fire
 extinguishers are located. If a fire starts in a spray booth, immediately
 shut off the spray system and exhaust fans.
- Shut off electrostatic power and ground the charging system before adjusting, cleaning, or repairing electrostatic equipment.
- Clean, maintain, test, and repair equipment according to the instructions in your equipment documentation.
- Use only replacement parts that are designed for use with original equipment. Contact your Nordson representative for parts information and advice.

Halogenated Hydrocarbon Solvent Hazards

Do not use halogenated hydrocarbon solvents in a pressurized system that contains aluminum components. Under pressure, these solvents can react with aluminum and explode, causing injury, death, or property damage. Halogenated hydrocarbon solvents contain one or more of the following elements:

<u>Element</u>	<u>Symbol</u>	<u>Prefix</u>
Fluorine	F	"Fluoro-"
Chlorine	CI	"Chloro-"
Bromine	Br	"Bromo-"
Iodine	I	"lodo-"

Check your material SDS or contact your material supplier for more information. If you must use halogenated hydrocarbon solvents, contact your Nordson representative for information about compatible Nordson components.

Action in the Event of a Malfunction

If a system or any equipment in a system malfunctions, shut off the system immediately and perform the following steps:

- Disconnect and lock out system electrical power. Close hydraulic and pneumatic shutoff valves and relieve pressures.
- Identify the reason for the malfunction and correct it before restarting the system.

Disposal

Dispose of equipment and materials used in operation and servicing according to local codes.

Description

Rhino SD/XD 125- or 160-mm frames provide down ram force to feed the pump. The air cylinders on the 160-mm frames provide more down ram force for thicker and harder-to-pump materials.

Components

Figure 1 and Table 1 illustrate and describe the major components of a typical Rhino SD/XD 125-mm frame and 160-mm frame.

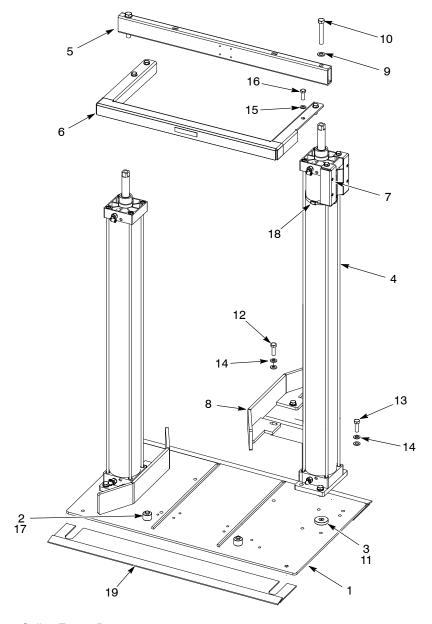


Figure 1 30- and 55-Gallon Frame Parts

NOTE: For clarity, some parts are not shown.

Table 1 125- and 160-mm Frame Components

Item	Description	Quantity	Note
_	Frame, 55-gallon air cylinder, hybrid		A, B
1	Frame base plate	1	В
2	Drum frame locating disc	2	
3	Air cylinder locating disc	2	
4	Air cylinder	2	
5	Crossover bar	1	
6	Yoke	1	
7	Controls support bracket	1	
8	55-gallon guide plate	2	
9	M16 flat washer	2	
10	M16 hex cap screw	2	
11	M10 flat socket screw	2	
12	M14 hex-head cap screw	4	
13	M14 hex cap screw	4	
14	M14 flat washer	16	
15	M12 flat washer	6	
16	M12 hex cap screw	6	
17	M10 hex cap screw	2	
18	Hose clamp	1	
19	Adapter plate (only on drum cart frames)	2	

NOTE A: Also compatible with 30-gal drums.

B: Comes in blue, red, or black.

NS: Not Shown

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Repair

The following instructions provide rebuild procedures for the Rhino SD/XD 125- or 160-mm frames.



WARNING: Allow only qualified personnel to perform the following tasks. Follow the safety instructions in this document and all other related documentation.

Replace the Air Cylinders



WARNING: The air cylinders are pressurized and can hold latent air pressure even when the supply air is shut off. To prevent serious injury, relieve all air pressure from the air cylinders before replacing them.

To ensure proper frame operation, replace both air cylinders at the same time. The following items are required to rebuild the large frame cylinders:

- Necessary replacement parts
- Rhino SD Interconnect Hose Modules manual 1047066
- 500-lb (227-kg) capacity lifting device
- Torque wrench that measures up to 92 ft-lb (125 N•m)

Block the Follower Plate

See Figure 2.

- 1. Use blocks (5) to elevate the follower plate (6) high enough to keep it from contacting the drum guides (4). Make sure that the follower plate/air motor assembly is secure to prevent it from tipping.
- 2. Verify that all pressure has been bled from the air cylinder pistons (3).
- 3. Remove any device or bracket that is installed at the top of the cylinder heads (2) and mounting rods (1).
- 4. Refer to the *Rhino SD Interconnect Hose Modules* manual to disconnect the hoses not shown.

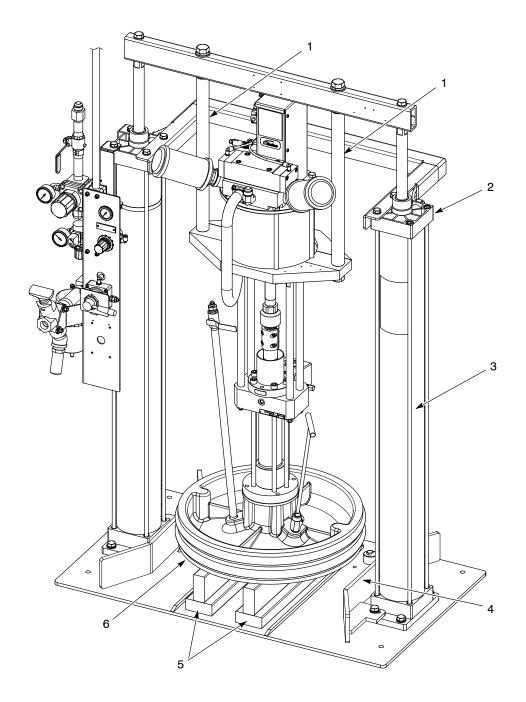


Figure 2 Blocking the Follower Plate

NOTE: For clarity, some parts are not shown.

Remove the Cylinder Shafts

NOTE: A 500-lb (227-kg) capacity lifting device is required for this procedure.

Remove the Cylinder Shafts Together

See Figure 3.

- 1. Remove the cap screws (5) and flat washers (6) that secure the crossover (3) to the cylinders (14).
- 1. Remove the cap screws (1) and flat washers (2) that secure the crossover (3) to the mounting rods (9).
- 2. Disconnect the tubing (12) from the fitting (11).
- 3. Remove the cap screws (7) and flat washers (8) from the air cylinders (14). Note the orientation of the cylinder heads (13).
- 4. Remove the cap screws (17) and the flat washers (18) that secure the drum guide (19). Remove the drum guide (19).
- 5. Remove the crossover (3) and mounting rods (9). Remove the yoke (4).
- 6. Remove the cap screws (15) and flat washers (16) from the base plate (21).
- 7. Remove the cylinder assembly (10).

NOTE: When removing the cylinder assembly (10), the cylinder disc (20) stays attached to the base plate (21).

Rebuild Instructions

Replacing the Cylinder Shafts

See Figure 3.

- 1. Bolt the cylinder assembly (10) to the base plate (21) with the cap screws (15) and flat washers (16). Do not torque yet.
- 2. Bolt the yoke (4) to the cylinders (14) with the flat washers (8) and cap screws (7). Do not torque yet.
- 3. Bolt the crossover (3) to the cylinders (14) using the flat washers (6) and cap screws (5). Do not torque yet.
- 4. Torque all cap screws in the following order:
 - Crossover (3): 92 ft-lb (125 N•m)
 - Yoke (4): 37 ft-lb (50 N•m)
 - Cylinders (14) to base plate (21): 60 ft-lb (81 N•m)
- 5. Hang the pump to the frame using the mounting rods (9), flat washers (2), and cap screws(1). Torque the cap screws to 250 ft-lb (339 N•m).

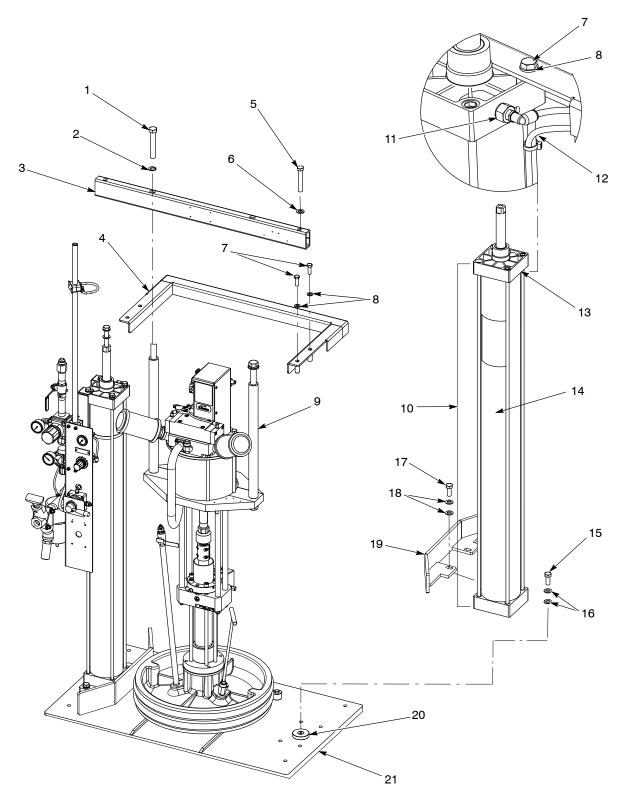


Figure 3 Removing and Replacing the Cylinder Shafts

NOTE: For clarity, some parts are not shown.

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Parts

To order parts, call the Nordson Industrial Coating Systems Customer Support Center at (800) 433-9319 or contact your local Nordson representative.

Using the Illustrated Parts List

Numbers in the Item column correspond to numbers that identify parts in illustrations following each parts list. The code NS (not shown) indicates that a listed part is not illustrated. A dash (—) is used when the part number applies to all parts in the illustration.

The number in the Part column is the Nordson Corporation part number. A series of dashes in this column (----) means the part cannot be ordered separately.

The Description column gives the part name, as well as its dimensions and other characteristics when appropriate. Indentions show the relationships between assemblies, subassemblies, and parts.

- If you order the assembly, items 1 and 2 will be included.
- If you order item 1, item 2 will be included.
- If you order item 2, you will receive item 2 only.

The number in the Quantity column is the quantity required per unit, assembly, or subassembly. The code AR (As Required) is used if the part number is a bulk item ordered in quantities or if the quantity per assembly depends on the product version or model.

Letters in the Note column refer to notes at the end of each parts list. Notes contain important information about usage and ordering. Special attention should be given to notes.

Item	Part	Description	Quantity	Note
_	0000000	Assembly	1	
1	000000	Subassembly	2	Α
2	000000	• • Part	1	

30- and 55-Gallon 125-mm Frames

See Figure 4 and the following parts lists.

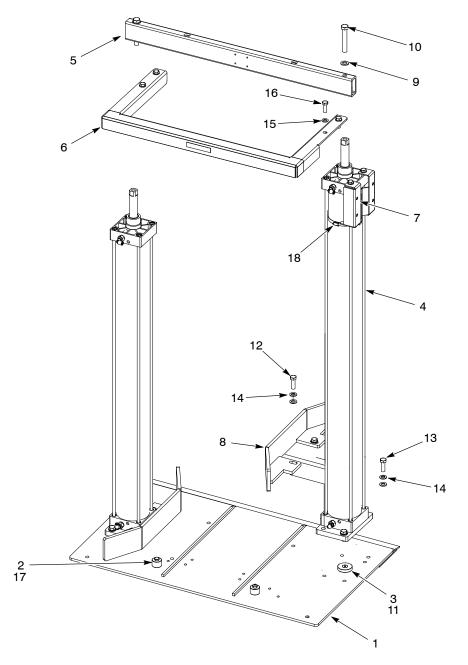


Figure 4 30- and 55-Gallon Frame Parts

Item	Part	Part	Description	Quantity	Note
_			FRAME, 55, air cyl, 125-mm, hybrid, red	1	Α
			FRAME, 55, air cyl, 125-mm	1	Α
			PLATE, base, frame, drum, Rhino, red	1	
1			PLATE, base, frame, drum, Rhino, blue	1	
			DISC, locating, drum, 55-gal, frame, Rhino, LG	2	
2			DISC, locating, drum, 55-gal, frame, Rhino	2	
3			DISC, locating, cylinder, air, 125-mm, B/U	2	
4	1606201	1606201	CYLINDER, air, 55, 125-mm, assy	2	
_			TUBE, rectangle, crossover, frame, 125/160-mm, red	1	
5			TUBE, rectangle, crossover, frame, 125/160-mm, blue	1	
			YOKE, U-channel, 125-mm cylinder, 55-gal, B/U, red	1	
6			YOKE, U-channel, 125-mm cylinder, 55-gal, B/U, blue	1	
7			BRACKET, support, controls, 55-gal/125-mm, red	1	
,			BRACKET, support, controls, 55-gal/125-mm, blue	1	
8	1609345	1609345	KIT, frame adapter plate, drum cart, 125-mm	2	
9			WASHER, flat, reg, M16, stainless steel, Zinc, per ISO 7089	2	
10			SCREW, hex, cap, M16 x 100, Zinc, Class 8.8, per ISO 4018	2	
11			SCREW, flat, skt, M10 x 20, BL, Class 8.8, per ISO 4018	2	
12			CAP SCREW, hex head, M14, 45-mm, stainless steel, Zinc, Class 8.8, per ISO 4018	4	
13			SCREW, hex, cap, M14 x 35, Zinc, Class 8.8, per ISO 4018	4	
14			WASHER, flat, m, reg, M14, Zinc, per ISO 7089	12	
14			WASHER, flat, m, reg, M14, Zinc per ISO 7089	16	
15			WASHER, flat, m reg, M12, Zinc, per ISO 7089	6	
16			SCREW, hex, cap, M12 x 35, Zinc, Class 8.8, per ISO 4018	6	
17			SCREW, hex, cap, M10 x 40, Class 8.8 per ISO 4018	2	
17			SCREW, hex, cap, M10 x 35, Zinc, Class 8.8 per ISO 4018	2	
18			CLAMP, hose, worm drive, 2.5-5.50, stainless steel, Class 8.8 per ISO 4018	1	
NS			UNION, Y, 8-mm T x 8-mm T	2	
NS			TUBE, polyurethane, 8-mm OD, black	17.50 m	
NS			TAG, warning, platen and manifold safety, 4 x .7	1	
NS			TAG, Rhino B/U, safety notice	1	
NS			CABLETIE, 3.9 in., 185F/85C, nylon, natural	8	
NS	900464	900464	ADHESIVE, Loctite 242, blue, removable, 50 m	-	

30- and 55-Gallon 160-mm Frames

See Figure 5 and the following parts lists.

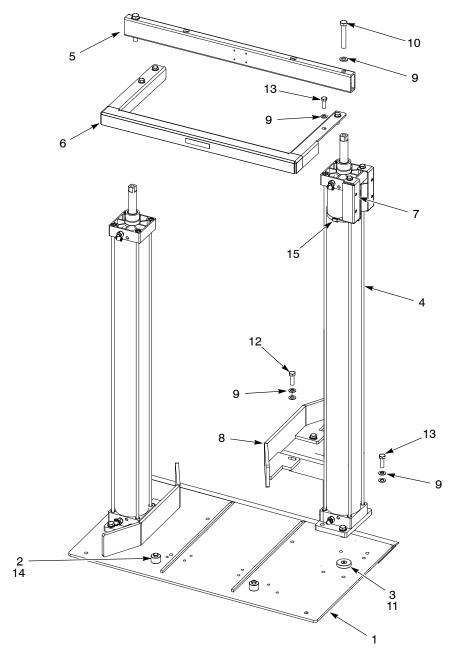


Figure 5 30- and 55-Gallon Frame Parts

Item	Part	Description	Quantity	Note
_		FRAME, 55, 160-mm cylinder	1	Α
1		PLATE, base, frame, drum, Rhino, blue	1	
2		DISC, locating, drum, 55-gal, frame, Rhino	2	
3		DISC, locating, cylinder, air, 160-mm, B/U	2	
4	1606234	CYLINDER, air, 55, 160-mm, assy	2	
5		TUBE, rectangle, crossover, frame, 125/160-mm	1	
6		YOKE, U-channel, 160-mm cylinder, 55-gal, B/U	1	
7		BRACKET, support, controls, 55-gal/160-mm	1	
8	1611490	KIT, guide plate with hardware	2	
9		WASHER, flat, reg, M16, stainless steel, Zinc, per ISO 7089	16	
10		SCREW, hex, cap, M16 x 100, Zinc, Class 8.8, per ISO 4018	2	
11		SCREW, flat, skt, M10 x 25, BL, Class 8.8, per ISO 4018	2	
12		CAP SCREW, hex head, M16, 45-mm, stainless steel, Zinc, Class 8.8, per ISO 4018	4	
13		SCREW, hex, cap, M16 x 35, Zinc, Class 8.8, per ISO 4018	10	
14		SCREW, hex, cap, M10 x 35, Zinc, Class 8.8, per ISO 4018	2	
15		CLAMP, hose, worm drive, 2.5-5.50, stainless steel, Class 8.8, per ISO 4018	1	
NS	900464	ADHESIVE, Loctite 242, blue, removable, 50 m	-	
NS		UNION, Y, 8-mm T x 8-mm T		
NS		TUBE, polyurethane, 8-mm OD, black	17.50 m	
NS		TAG, warning, plate and manifold safety, 4 x .7	1	
NS		TAG, Rhino B/U, safety notice	1	
NS		CABLETIE, 3.9 in., 185F/85C, nylon, natural	8	

NOTE A: Also compatible with 30-gal drums.

NS: Not Shown

30- and 55-Gallon 125-mm Drum Cart Frame

See Figure 6 and the following parts list.

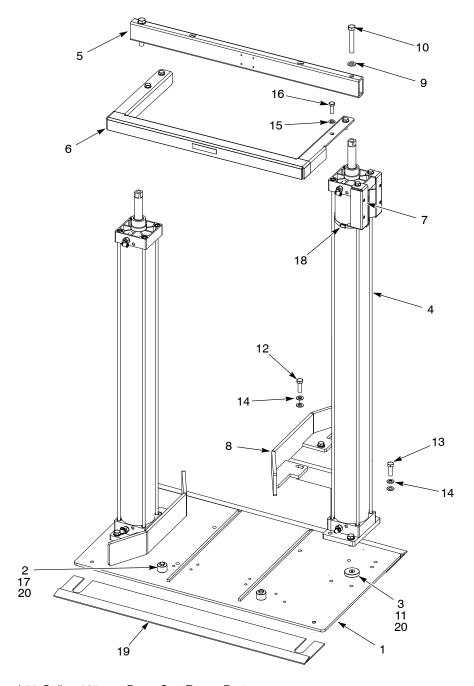


Figure 6 30- and 55-Gallon 125-mm Drum Cart Frame Parts

Item	Part	Description	Quantity	Note
_		FRAME, 55, 125-mm cylinder, drum cart	1	А
1		PLATE, base, frame, drum, Rhino, blue	1	
2		DISC, locating, drum, 55-gal, frame, Rhino	2	
3		DISC, locating, cylinder, air, 125-mm, B/U	2	
4	1606201	CYLINDER, air, 55, 125-mm, assy	2	
5		TUBE, rectangle, crossover, frame, 125/160-mm	1	
6		YOKE, angle, SD3/XD3	1	
7		BRACKET, support, controls, 55-gal/125-mm	1	
8		PLATE, guide, 55, 125-mm frame, drum cart	2	
9	983019	WASHER, flat, reg, M16, stainless steel, Zinc, per ISO 7089	2	
10		SCREW, hex, cap, M16 x 100, Zinc, per ISO 4018	2	
11		SCREW, flat, skt, M10 x 20, BL, per ISO 4018	2	
12		CAP SCREW, hex head, M14, 45-mm, stainless steel, Zinc, Class 8.8, per ISO 4018	4	
13		 SCREW, hex, cap, M14 x 35, Zinc Class 8.8, per ISO 4018 	4	
14		WASHER, flat, reg, M14, Zinc, per ISO 7089	16	
15		WASHER, flat, reg, M12, Zinc, per ISO 7089	6	
16		 SCREW, hex, cap, M12 x 35, Zinc, Class 8.8, per ISO 7089 	6	
17		 SCREW, hex, cap, M10 x 35, Zinc, Class 8.8, per ISO 4018 	2	
18		CLAMP, hose, worm drive, 2.5-5.50, stainless steel, Class 8.8, per ISO 4018	1	
19		PLATE, adapter, drum cart	2	
20	900464	ADHESIVE, Loctite 242, blue, removable, 50 m	AR	
NS		STRAP cable, 4 in., black	16	
NS		UNION, Y, 8-mm T x 8-mm T	2	
NS		TUBE, polyurethane, 8-mm OD, black	17.50 m	
NS		TAG, warning, plate and manifold safety, 4 x .7	1	
NS		TAG, Rhino B/U, safety notice	1	

NOTE A: Also compatible with 30-gal drums.

AR: As Required NS: Not Shown

30- and 55-Gallon 160-mm Drum Cart Frame

See Figure 7 and the following parts list.

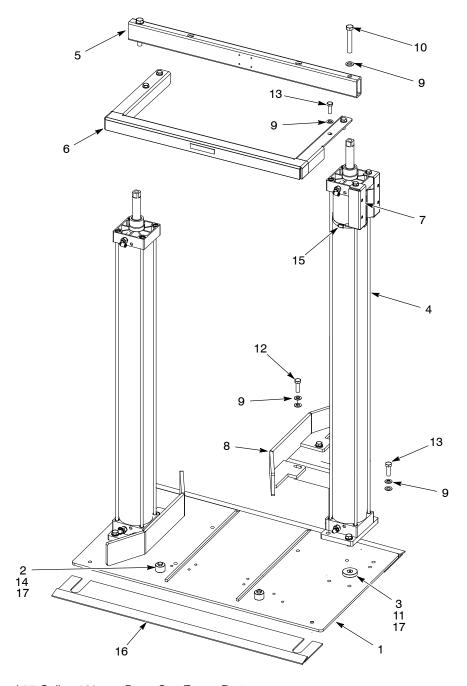


Figure 7 30- and 55-Gallon 160-mm Drum Cart Frame Parts

ltem	Part	Description	Quantity	Note
_		FRAME, 55, 160-mm cylinder, drum cart	1	Α
1		PLATE, base, frame, drum, Rhino, blue	1	
2		DISC, locating, drum, 55-gal, frame, Rhino	2	
3		DISC, locating, cylinder, air, 160-mm, B/U	2	
4	1606234	CYLINDER, air, 55, 160-mm, assy	2	
5		TUBE, rectangle, crossover, frame, 125/160-mm	1	
6		YOKE, u-channel, 160-mm cylinder, 55-gal	1	
7		BRACKET, support, controls, 55-gal/160-mm	1	
8		PLATE, guide, 55, 160-mm frame, drum cart	2	
9	983019	WASHER, flat, reg, M16, stainless steel, Zinc, per ISO 7089	16	
10		SCREW, hex, cap, M16 x 100, Zinc, Class 8.8, per ISO 4018	2	
11		SCREW, flat, socket, M10 x 25-mm, BL, Class 8.8, per ISO 4018	2	
12		CAP SCREW, hex head, M16, 45-mm, stainless steel, Zinc, Class 8.8, per ISO 4018	4	
13		SCREW, hex, cap, M16 x 35, Zinc, Class 8.8, per ISO 4018	10	
14		SCREW, hex, cap, M10 x 35, Zinc, Class 8.8, per ISO 4018	2	
15		CLAMP, hose, worm drive, 4.13-7.00, stainless steel, Class 8.8, per ISO 4018	1	
16		PLATE, adapter, drum cart	2	
17	900464	ADHESIVE, Loctite 242, blue, removable, 50 m	AR	
NS		CABLETIE, 3.9 in., 185F/85C, nylon, natural	8	
NS		UNION, Y, 8-mm T x 8-mm T	2	
NS		TUBE, polyurethane, 8-mm OD, black	17.50 m	
NS		TAG, warning, plate and manifold safety, 4 x .7	1	
NS		TAG, Rhino B/U, safety notice	1	

NOTE A: Also compatible with 30-gal drums.

AR: As Required NS: Not Shown

Drum Cart Adapter Kits

See Figure 8 and the following parts list.

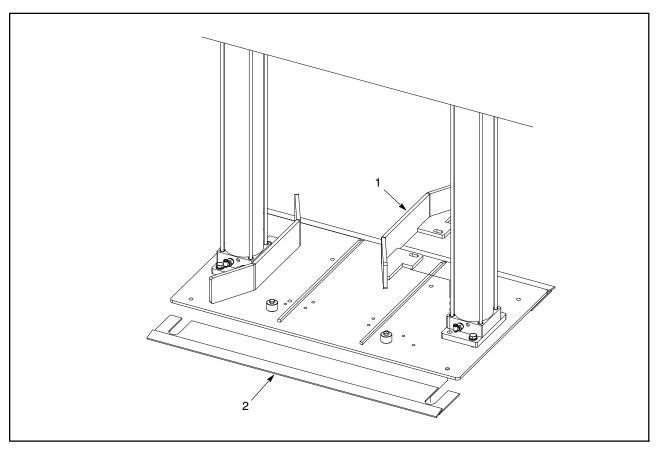


Figure 8 Drum Cart Adapter Kit Parts

Item	Part	Part	Description	Quantity	Note
_	1609345		KIT, frame adapter plate, drum cart, 125-mm	1	
_		1613869	KIT, frame adapter plate, drum cart, 125-mm	1	
4			PLATE, guide, 55-gallon, 125-mm frame, drum cart	2	
'			PLATE, guide, 55-gallon, 160-mm frame, drum cart	2	
2			PLATE, adapter, 55-gallon, 125-mm, drum cart	2	
			PLATE, adapter, 55-gallon, 160-mm, drum cart	2	