



Quiet Portable Dryer

Models:

Q112, Q114, Q116, Q118, Q120, Q122, Q126, Q270, Q320, Q370, Q400, Q460, Q122, Q601

Installation Guide

PNEG-2088

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All information, illustrations, photos, and specifications in this manual are based on the latest information available at the time of publication. The right is reserved to make changes at any time without notice.

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1 Safety Precautions

Topics Covered in this Chapter

- Safety Guidelines
- Cautionary Symbol Definitions
- Safety Cautions
- Safety Decals
- Safety Sign-off Sheet

Safety Guidelines

Safety guidelines are general-to-specific safety rules that must be followed at all times. This manual is written to help you understand safe operating procedures and problems that can be encountered by the operator and other personnel when using this equipment. Read and save these instructions.

As owner or operator, you are responsible for understanding the requirements, hazards, and precautions that exist and to inform others as required. Unqualified persons must stay out of the work area at all times.

Alterations must not be made to the equipment. Alterations can produce dangerous situations resulting in **SERIOUS INJURY or DEATH**.

This equipment must be installed in accordance with the current installation codes and applicable regulations, which must be carefully followed in all cases. Authorities having jurisdiction must be consulted before installations are made.

When necessary, you must consider the installation location relative to electrical, fuel and water utilities.








Personnel operating or working around equipment must read this manual. This manual must be delivered with equipment to its owner. Failure to read this manual and its safety instructions is a misuse of the equipment.

ST-0001-4

Cautionary Symbol Definitions

Cautionary symbols appear in this manual and on product decals. The symbols alert the user of potential safety hazards, prohibited activities and mandatory actions. To help you recognize this information, we use the symbols that are defined below.

Table 1-1 *Description of the different cautionary symbols*

Symbol	Description
	This symbol indicates an imminently hazardous situation which, if not avoided, will result in serious injury or death.
	This symbol indicates a potentially hazardous situation which, if not avoided, can result in serious injury or death.
	This symbol indicates a potentially hazardous situation which, if not avoided, can result in minor or moderate injury.
	This symbol is used to address practices not related to personal injury.
	This symbol indicates a general hazard.
	This symbol indicates a prohibited activity.
	This symbol indicates a mandatory action.

ST-0005-2

Safety Cautions

Use Personal Protective Equipment

- Use appropriate personal protective equipment:

Eye Protection



Respiratory Protection



Foot Protection



Hearing Protection



Head Protection



Fall Protection



Hand Protection



- Wear clothing appropriate to the job.
- Remove all jewelry.
- Tie long hair up and back.

ST-0004-1

Follow Safety Instructions

- Warning:** If the information in the manual is not followed exactly, a fire or explosion can result, causing property damage, personal injury or loss of life.
- Carefully read all safety messages in this manual and safety signs on your machine. Keep signs in good condition. Replace missing or damaged safety signs. Be sure new equipment components and repair parts include the current safety signs. Replacement safety signs are available from the manufacturer.
- Learn how to operate the machine and how to use controls properly. Do not let anyone operate without instruction.
- If you do not understand any part of this manual or need assistance, contact your dealer.
- Retain these instructions for future reference.



ST-0025-3

Chapter 1: Safety Precautions

Install and Operate Gas-Fired Equipment Properly

- Gas-fired equipment should be installed by a qualified pipe fitter and must conform with local codes.
- For Canada: The equipment shall be installed in accordance with the *Natural Gas and Propane Installation Code, CSA B149.1*, or the *Propane Storage and Handling Code, CSA B149.2*, or applicable provincial regulations, which should be carefully followed in all cases. Authorities having jurisdiction should be consulted before installations are made.
- For the United States: The equipment shall be installed in accordance with the *National Fuel Gas Code ANSI Z223.1/ NFPA 54*.



ST-0016-2

Install and Operate Equipment Properly

- Before attempting to remove and reinstall the fan blade, contact GSI for the recommended procedure.



ST-0033-2

Fall Hazard

- Ladders, stairways and platforms are for use by competent and trained personnel only. Do not allow children or other unauthorized persons to have access to the equipment.
- Access to the equipment must be restricted by the use of security fencing and lockable gates.
- Lower sections of ladders must be fitted with a lockable safety gate to prevent unauthorized access.
- Make sure that hot surfaces have had adequate time to cool before working on or in the equipment.
- Lock out and tag out power supplies and fuel supplies to all equipment.
- Do not attach lifting equipment to ladders or platforms.
- Do not go outside of the safety rails provided on elevated platforms.
- Do not work at heights during high winds, rain, snow, or ice storms.



ST-0056-1

For Your Safety

- If you smell gas:
 - Do not try to light any appliance.
 - Extinguish any open flames.
 - Do not touch any electrical switch.
 - Immediately call your gas supplier. Follow the gas supplier's instructions.
 - If you cannot reach your gas supplier, call the fire department.
- The use and storage of gasoline and other flammable vapors and liquids in open containers in the vicinity of this appliance is hazardous.
- Improper installation, adjustment, alteration, service or maintenance can cause property damage, injury or death. Read the installation, operating and maintenance instructions thoroughly before installing or servicing this equipment. Installation and service must be performed by a qualified installer, service agency or the gas supplier.



ST-0024-1

Stay Clear of Hoisted Equipment

- Always use proper lifting or hoisting equipment when assembling or disassembling equipment.
- Do not walk or stand under hoisted equipment.
- Always use sturdy and stable supports when needed for installation. Not following these safety precautions creates the risk of falling equipment, which can crush personnel and cause serious injury or death.



ST-0047-1

Install and Operate Electrical Equipment Properly

- Electrical controls must be installed by a qualified electrician and must meet the standards set by applicable local codes (National Electrical Code for the US, Canadian Electric Code, or EN60204 along with applicable European Directives for Europe).
- Lock-out power source before making adjustments, cleaning, or maintaining equipment.
- Make sure all equipment is properly grounded.



ST-0027-4

Chapter 1: Safety Precautions

Maintain Equipment and Work Area

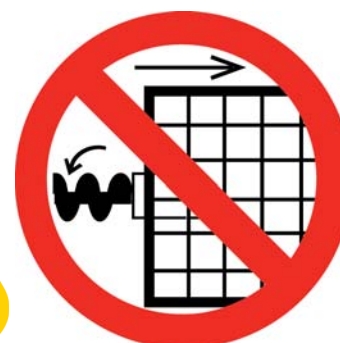
- Understand service procedures before doing work.
- Keep area clean and dry.
- Do not service equipment while it is operating. Disconnect and lock-out power and fuel supply before entering equipment or before performing maintenance.
- Keep your equipment in proper working condition. Replace worn or broken parts immediately.
- Depressurize the fuel train before disassembling for service.
- Allow the fan to operate for 20 minutes with the burner off to purge products of combustion and to cool the components before entering.
- Check regularly for any developing gas plumbing leaks. Do not operate the dryer if any gas leak is detected. Shut down and repair before further operation.



ST-0030-2

Rotating Auger Hazard

- Keep clear of rotating augers and moving parts.
- Do not remove or modify guards or covers.
- Lock-out power source before making adjustments, cleaning, or maintaining equipment.
- Failure to follow these precautions will result in serious injury or death.



ST-0037-1

Exercise Caution When Drying Flammable Grains

- Be aware that some grains are highly flammable including, but not limited to, rapeseed, canola, linseed, sunflower and milo.
- All grain and seed must be whole (minimal cracking or crushing), clean, and dust free before drying.
- Avoid dust and chaff from being drawn into the fan and heater.
- To reduce risk of fire, keep the fan, heater, drying plenum, and ducts clean at all times.
- In the event of a fire (or suspected fire):
 1. Shut down the entire dryer.
 2. Turn off the fuel at the tank or supply valve.
 3. Shut off and lock electrical power.
 4. Evacuate the area.
 5. Call the fire department.



ST-0032-1

Maintain Equipment and Work Area

- Equipment is intended for the use of grain drying only. Any other use is a misuse of this equipment.
- The operating instructions in this manual pertain to the common cereal grains as indicated. When drying any other grain, contact GSI for additional recommendations.
- Be certain that capacities of auxiliary conveyors are matched to dryer metering capacities.
- On LP fired units, set pressure regulator to avoid excessive gas pressure applied to the burner during ignition and operation. Do not exceed maximum recommended drying temperatures.
- Equipment has sharp edges that can cause serious injury. To avoid injury, handle sharp edges with caution and use proper protective clothing and equipment at all times.
- All guards must be in place before and during operation. Images of guards removed in this manual are for illustration purposes only.
- Use caution when working around high-speed fans, gas burners, augers and auxiliary conveyors which can start automatically.
- Keep hands, feet, and clothing away from moving parts.
- Do not bypass any safety device or interlock.
- Do not enter the dryer or bin while it is operating.
- Do not operate in an area where combustible material will be drawn into the dryer.



ST-0034-2

Confined Space Hazards and Entry Procedures

- Note that the interior of this equipment is considered a confined space. Maintenance of this equipment can require access to the confined space.
- Access doors must be shut and locked except when access is required.
- Doors giving access to dangerous equipment must be safety interlocked.
- The following entry procedures must be followed:
 - Be aware of all possible hazards present inside the confined space and wear personal protective equipment (PPE) as needed.
 - Complete a permit to work and follow all permit required confined space entry procedures defined by the site manager.
 - Make sure that the area has been purged of any hazardous products or gases. Check the atmosphere for harmful gases or vapors with a suitable gas analyzer and make sure levels are safe before entering.
 - Do not smoke or use naked flames.
 - Lock out and tag out power supplies and fuel supplies to all equipment.
 - Do not work alone. Work in teams of at least three so that help is immediately available in the event of an emergency.
 - Confirm that all personnel have safely exited the equipment and tools have been recovered once work is complete.



ST-0055-1

Safety Decals

The safety decals on your grain dryer are safety indicators which must be carefully read and understood by all personnel involved in the installation, operation, service, and maintenance of the grain dryer.

Table 1-2 Description of the grain dryer's decals


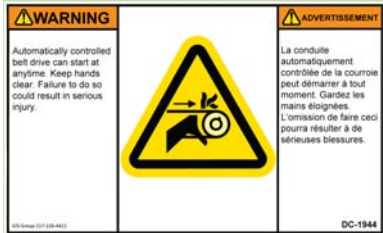









Decal	Decal No.	Location
	DC-1948	<p>This decal appears:</p> <ul style="list-style-type: none"> On the lid of the fan/heater control box On the front of the fan/heater control box Inside the dryer's upper control box
	DC-1944	<p>This decal appears:</p> <ul style="list-style-type: none"> On the bottom auger belt guard On the front bearing plate (visible when the bottom auger belt guard is removed) At the rear of the dryer (for dryers equipped with the front discharge option) On the top auger belt guard On the inside belt guard body (visible when the top auger belt guard is removed)
	DC-1945	<p>This decal appears:</p> <ul style="list-style-type: none"> On the bottom auger belt guard On the front bearing plate (visible when the bottom auger belt guard is removed) At the rear of the dryer (for dryers equipped with the front discharge option)
	DC-1946	<p>This decal appears:</p> <ul style="list-style-type: none"> On the inside of the rear plenum access door On the outside of the rear plenum access door

Table 1-2 Description of the grain dryer's decals (cont'd.)

Decal	Decal No.	Location
	DC-1947	<p>This decal appears:</p> <ul style="list-style-type: none"> • Twice on the front end panel, below the fan/heater • Twice on the rear end panel, below the rear access door • On the auger discharge box • On the inside of the auger discharge box's flapper lid (next to the discharge mercury switch) • Inside the rear access door, on the rear plenum closure door (inside the plenum)
	DC-1943	<p>This decal appears:</p> <ul style="list-style-type: none"> • Inside the fan/heater control box • On the door of the dryer's upper control box
	DC-1949	<p>This decal appears on the fan/heater access door</p>
	DC-1959	<p>This decal appears on the fan/heater access door</p>
	DC-1950	<p>This decal appears on each of the metering roll access doors</p>

Chapter 1: Safety Precautions

Table 1-2 Description of the grain dryer's decals (cont'd.)

Decal	Decal No.	Location
	DC-1956	This decal appears on the hitch tongue
	DC-1954	This decal appears on the hitch tongue

Replacing Decals

All decals located on your grain dryer must remain legible and clearly visible at all times. To replace a damaged or missing decal, contact us to receive a free replacement.

GSI Decals

1004 E. Illinois St.
Assumption, IL. 62510
Tel: 1-217-226-4421

Safety Sign-off Sheet

Below is a sign-off sheet that can be used to verify that all personnel have read and understood the safety instructions. This sign-off sheet is provided for your convenience and personal record keeping.

[illegible]

ST-0007

NOTES

2 Installation Guidelines

Topics Covered in this Chapter

- Guidelines for Transporting a Portable Dryer
- Guidelines for Placing a Portable Dryer
- Recommendations for a Single Modules Quiet Portable Dryer Foundation

Guidelines for Transporting a Portable Dryer

To transport the dryer safely, follow the recommended guidelines and adhere to all state or provincial towing regulations.

- Refer to the [Dryer Specifications, page 65](#) for the dryer transportation dimensions.
- Ensure that the hitch height is between 14-17 in. (35.6-43.2 cm), refer to the [Figure 2-1, page 19](#).
- The hitch bolt must be at least 0.75 in. (1.9 cm) in diameter and securely fastened with a locking nut, refer to the [Figure 2-2, page 20](#).
- Use washers to minimize the vertical hitch movement.
- Always use a safety chain.
- Dryer must be towed empty and in accordance with applicable state or provincial regulations.

NOTE: *NEVER tow dryer with grain or any other material inside of it. Never tow after top modules have been stacked.*

- Recommended tire pressure is 55-60 PSI (3.8 bar) cold.
- Ensure the wheel lug nuts are torqued at 115-120 ft.-lbs. (160 Nm).
- Maximum towing speed is 45 mph (70 km/h) or the speed limit, whichever is *lower*.
- After the first 50 miles (80 km) and every 200 miles (300 km) thereafter, examine the dryer wheel hub and the spindle temperature immediately after stopping.

NOTE: *Temperature must not exceed 150° F (65° C) or lubricant will melt.*

Figure 2-1 14-17 in. (35.6-43.2 cm) towing hitch height and safety chain

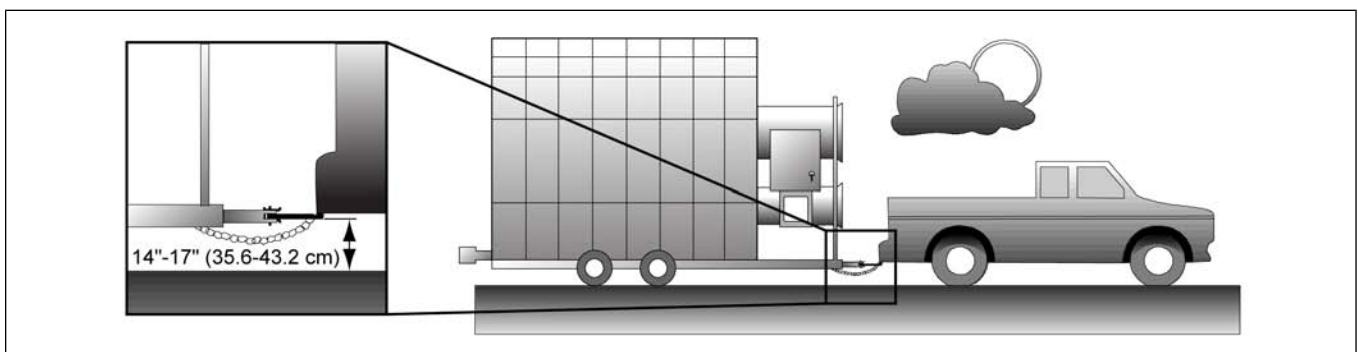
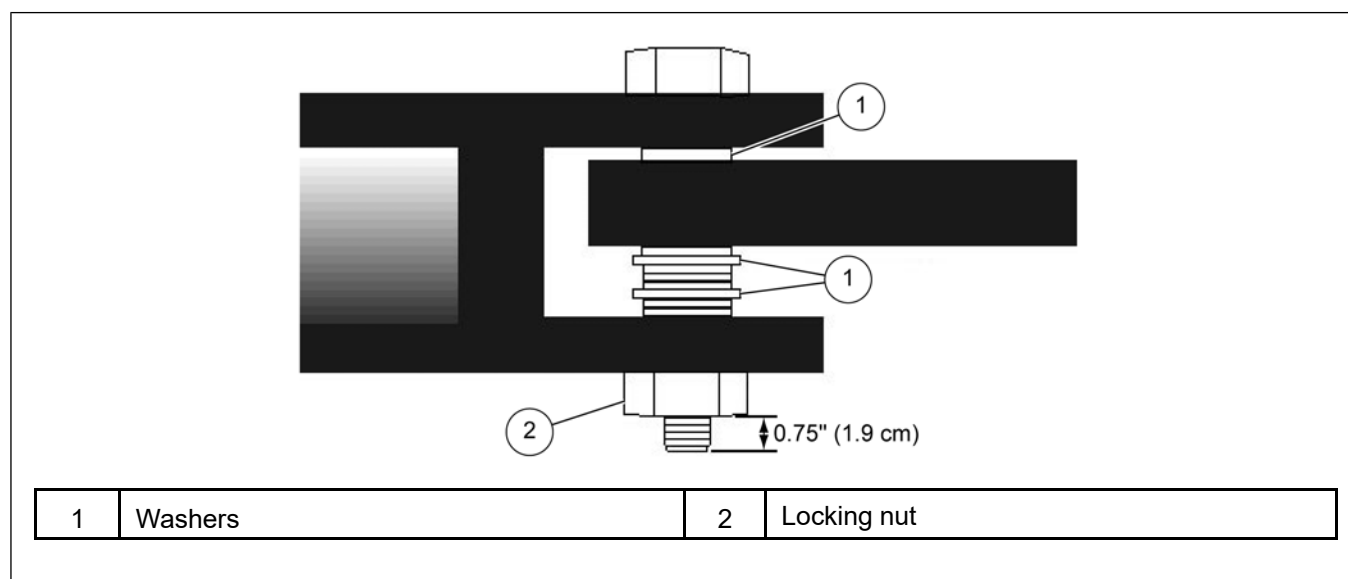


Figure 2-2 Hitch bolt with washer used for spacing



Guidelines for Placing a Portable Dryer

The location of existing equipment and local code requirements must be evaluated before installing the dryer.

Things to consider when choosing a location:

- Refer to the [Dryer Specifications, page 65](#) for dryer installation dimensions.
- Consult all national and local electrical and gas codes to ensure dryer is located correctly.
- Consider the location of the wet grain supply and dry grain discharge in relationship to the dryer.
- Consider the location of the storage bins and other grain handling equipment in relationship to the dryer.
- Consider the location of the fuel supply and electrical sources in relationship to the dryer.
- Maintain a minimum distance of at least three feet between the dryer and other structures, otherwise air flow problems may occur.



Do not operate dryer in an area where combustible materials can be drawn into the fans or where load and unload augers can come into contact with power lines.

Recommendations for a Single Modules Quiet Portable Dryer Foundation

A reinforced concrete pad or similar permanent foundation is required to keep the dryer stable during operation.

Minimum Bag Mix for Concrete Strength per Model Weight

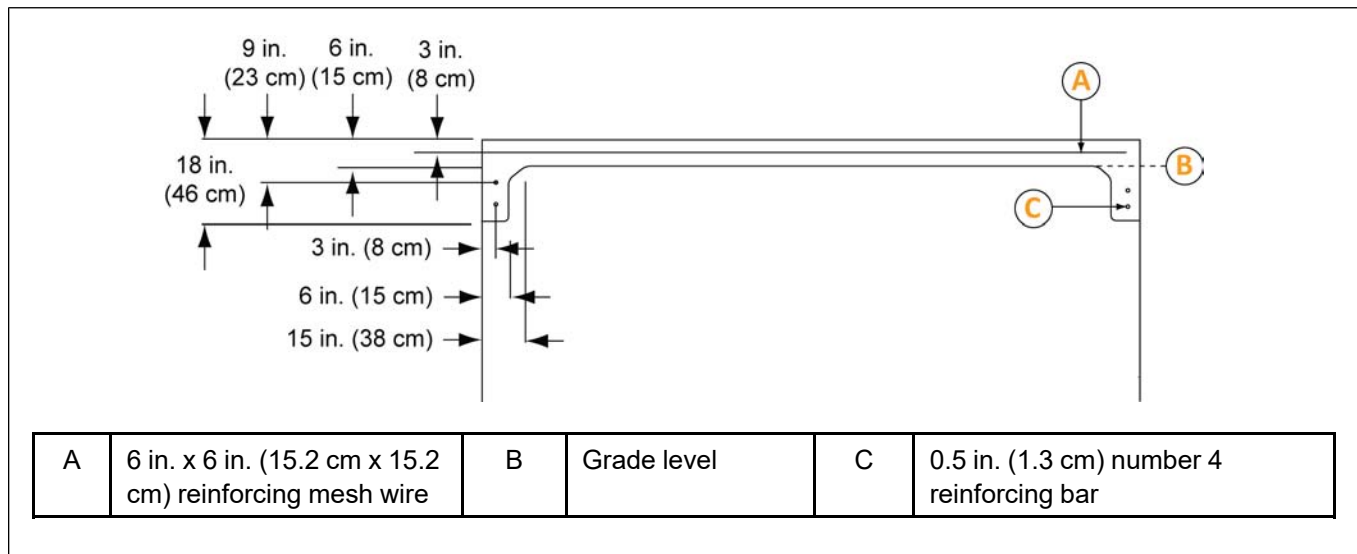
Consider the location of the gas and electrical service locations and how the pipe and the wire need to be positioned before pouring the concrete.

To prevent the dryer from overturning or moving laterally, the dryer must be secured to the foundation using anchor bolts or cables. Anchor bolts can be cast into the concrete slab and secured to the dryer legs. The dryer can also be secured using cables and turnbuckles that are fastened to the anchors that are installed at the edge of the concrete slab.

Table 2-1 General reference for concrete materials needed for each size dryer foundation.

Dryer basket length	12	14	16	18	20	22	26
Concrete pad size (ft x ft)	12 x 26	12 x 28	12 x 30	12 x 33	12 x 35	12 x 37	12 x 41
Concrete pad size (m x m)	3.7 x 7.9	3.7 x 8.5	3.7 x 9.1	3.7 x 10	3.7 x 11	3.7 x 11	3.7 x 12.5
Concrete yards (meters)	8.5 (7.8)	9.1 (8.3)	9.8 (9.0)	10.7 (9.8)	11.3 (10.3)	11.9 (10.9)	13.1 (12.0)
Quantity of reinforcing rods 20 ft (6.1 m) each	8	9	9	10	11	11	12
Wire mesh ft ² (m ²)	312 (29)	336 (31.2)	360 (33.4)	396 (36.8)	420 (39)	444 (41.2)	492 (45.7)
Steel legs (minimum quantity)	12	14	14	16	16	18	20
Anchors	8	8	8	10	10	10	12
Blocks	22	22	22	26	26	30	34
Feet (Meters) of 2 x 6 boards	22 (6.7)	22 (6.7)	22 (6.7)	26 (7.9)	26 (7.9)	30 (9.1)	34 (10.4)
Quantity of turnbuckles	8	8	8	10	10	10	12
Estimated man-hours	14	18	18	20	22	24	28
Quantities are approximate and requirements might vary due to site elevations. Setup times do not include site preparations and the pouring of the concrete pad.							

Figure 2-3 Cross-section of the concrete for single-module dryers



Chapter 2: Installation Guidelines

Figure 2-4 Recommended locations for external equipment

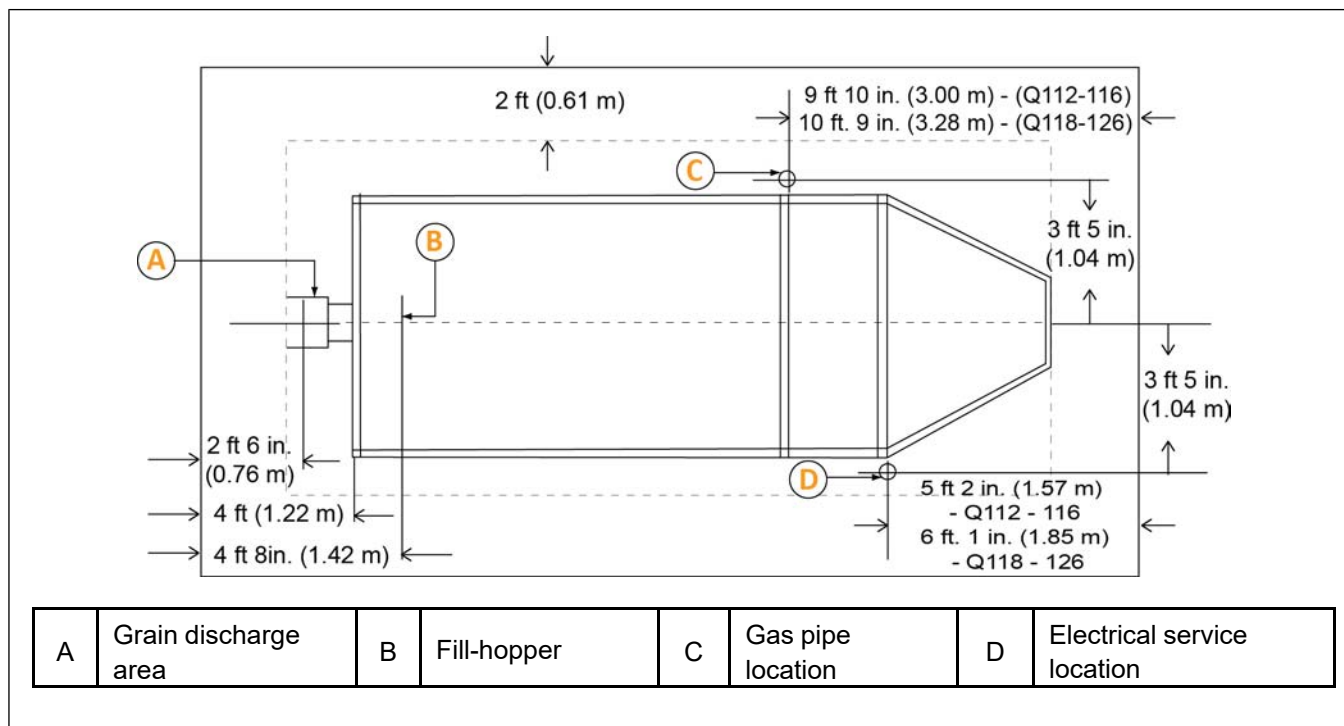
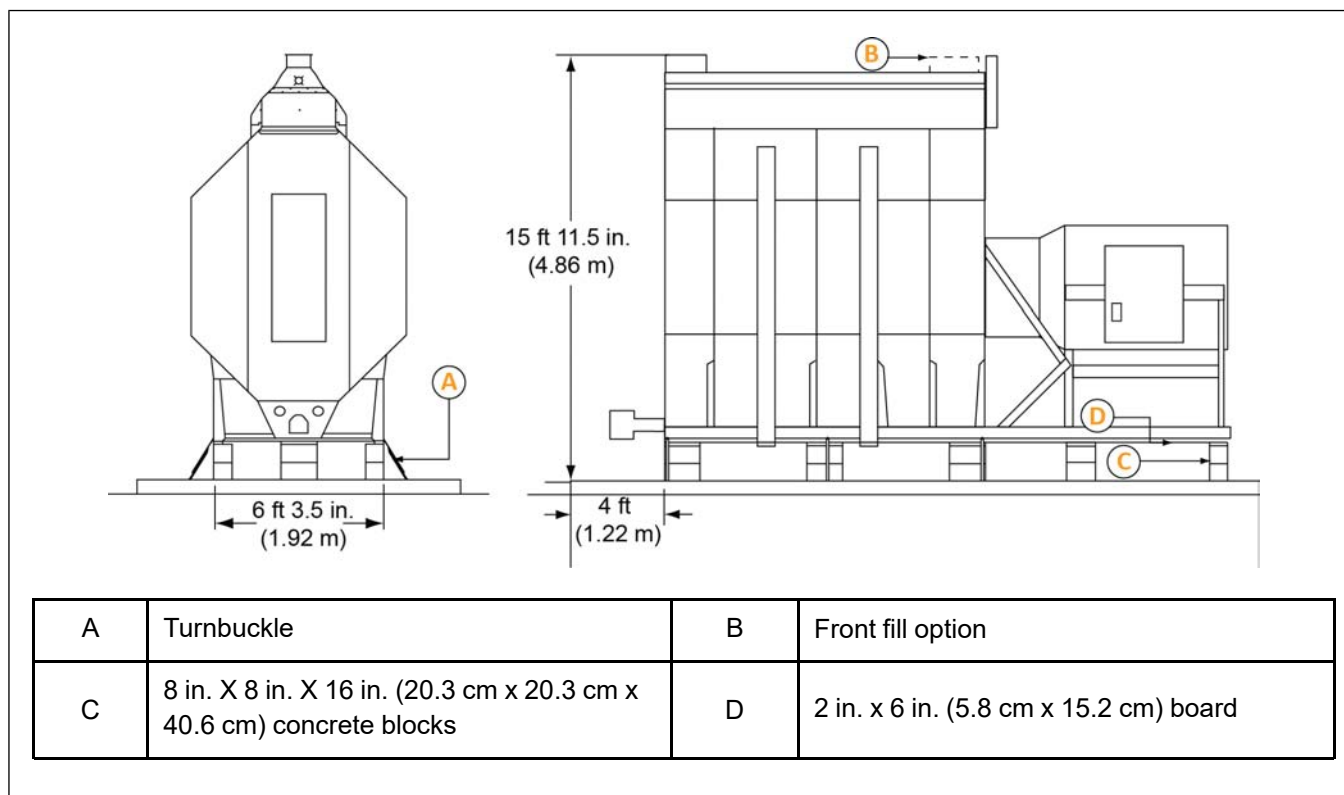


Figure 2-5 Side and rear view of the portable dryer



3 Dryer Supports

Topics Covered in this Chapter

- Guidelines for Supporting the Dryer with Concrete Blocks
- Guidelines for Supporting the Dryer with Leg Stands
- Leg Stand Spacing
- Installing the Front and Rear Anchor Plates
- Installing the Fan and Heater Support Leg
- Installing a Leg Stand Along the Dryer Frame
- Installing the Leg Stands to the Hitch Frame

Guidelines for Supporting the Dryer with Concrete Blocks

Before filling the dryer with grain, the dryer frame must be supported with either concrete blocks or leg stands. If choosing concrete blocks, follow these guidelines for proper installation:

- Place a 2 x 6 or 2 x 8 board between the dryer frame and the concrete blocks to prevent the dryer frame from fracturing the concrete blocks.
- To prevent the dryer from overturning, it must be secured to the foundation using cables and turnbuckles that are fastened to anchors in the concrete foundation.
- Do not use the wheels as supports. Wheels are for transporting the dryer when it is empty.
- Place concrete blocks six feet apart on each side of the dryer to support the dryer frame.

NOTE: *A minimum of one support for every six feet of basket length is required on each side.*

- The blocks must be able to support the weight of a dryer that is filled with grain.
- With the hitch tongue removed, place a concrete block under the hitch mount location.
- The hitch assembly and the fan support must remain in place during operation. The hitch assembly and fan support are not part of the transport tie down assembly.
- Use shims to provide uniform, level support for all blocks.
- The dryer should be 16 in. (40.6 cm) off the concrete pad to accommodate for clean-out and the use of auxiliary grain handling equipment.

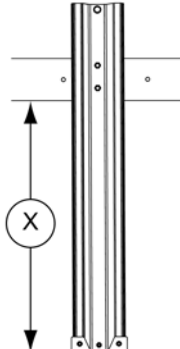
Guidelines for Supporting the Dryer with Leg Stands

Before filling the dryer with grain, the dryer frame must be supported with either concrete blocks or leg stands. Leg stands are optional and available in seven different sizes to accommodate various dryer heights.

Leg Stand Height Options

Leg stands are optional and must be ordered separately from your dryer. If you do not have leg stands, you must support the dryer with concrete blocks.

Table 3-1 Leg stand heights

Part number	Leg stand height (X)	
D01-0408	16 in. (406.4 mm)	
D01-1046	18 in. (457.2 mm)	
D01-0398	24 in. (609.6 mm)	
D01-0399	30 in. (762 mm)	
D01-1047	36 in. (914.4 mm)	
D01-0582	42 in. (1066.8 mm)	
D01-0761	* 48 in. (1219.2 mm)	

NOTE: * All 48 in. legs require cross braces to be installed. Refer to PNEG-1860 for cross brace installation instructions.

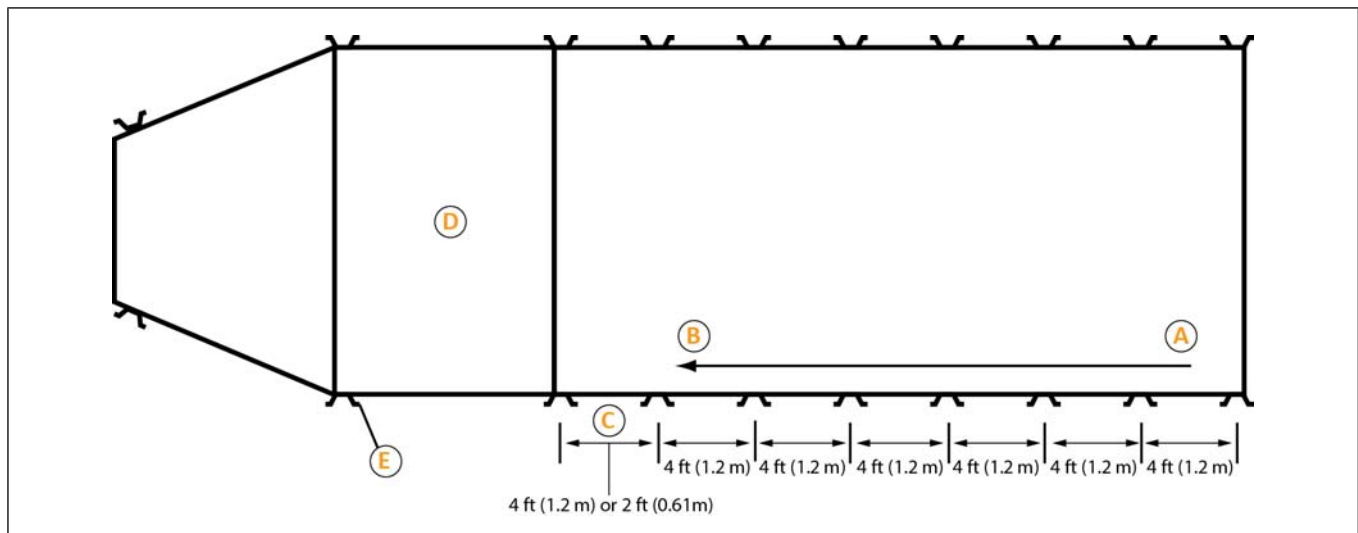
Leg Stand Spacing

Correct leg spacing is important to adequately support the dryer during operation. Incorrect spacing can result in unstable operating conditions.

Leg Spacing for Quiet Portable Dryers

Starting at the back corner of the dryer (A), space legs 4 ft (1.22 m) apart and move towards the front (B). Spacing between the front legs (C) can be 2 ft (0.61 m) or 4 ft (1.22 m), depending on the length of the dryer. The fan and heater (D) extend out from the plenum and is supported by the fan and heater supports (E).

Figure 3-1 Leg spacing on a quiet portable dryers

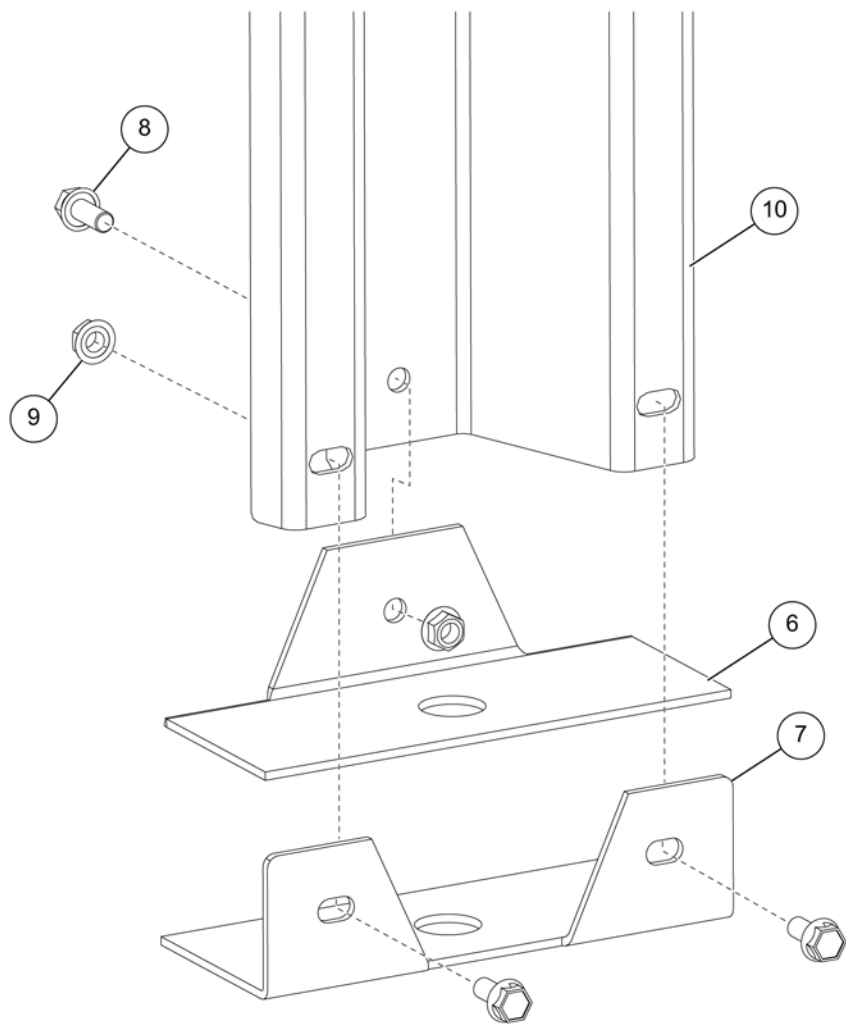


Installing the Front and Rear Anchor Plates

To secure the dryer, you must install the front and rear anchor plates to the leg stand bottoms, thereby enabling the legs to be anchored to the concrete foundation.

1. Use a flange bolt (8) and a flange nut (9) to attach the rear leg anchor plate (6) to the bottom of the leg stand (10).
2. Position the front leg anchor plate (7) below the rear leg anchor plate (6) and use two flange bolts (8) and flange nuts (9) to attach the anchor plate to the front of the leg stand (10).
3. Secure the leg stand (10) to the concrete foundation using concrete anchor bolts (not supplied).

Figure 3-2 Leg anchor plate assembly



6	Rear leg anchor plate (BLK-10057)	9	5/16 in. flange nut (S-3611)
7	Front leg anchor plate (BLK-10058)	10	Refer to the Leg Stand Height Options, page 24 for leg stand (* D01-XXXX).
8	5/16 x 3/4 in. flange bolt (S-6606)		

NOTE: * All 48 in. legs require cross braces to be installed. Refer to PNEG-1860 for cross brace installation instructions.

Installing the Fan and Heater Support Leg

If not using concrete blocks, you must install leg stands to the dryer frame to support the dryer.

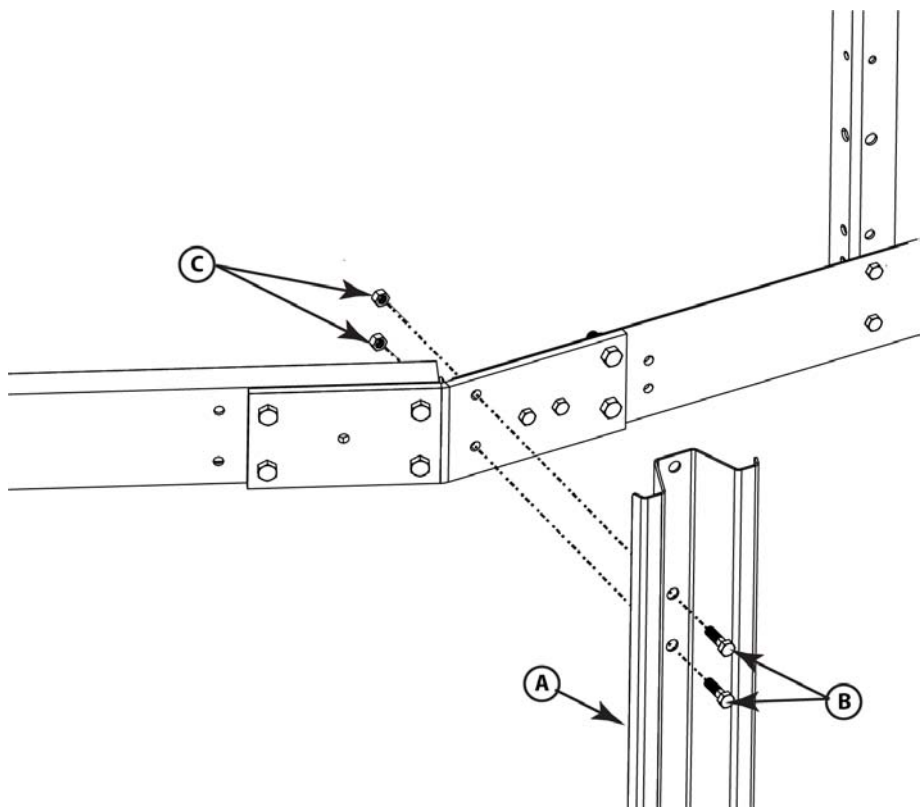
What You Should Know

The fan and heater support leg is positioned right before the dryer tongue.

To install the fan and heater support leg:

1. Remove the two existing bolts and nuts from the dryer frame corner (B and C).
2. Align the holes in the fan and heater support leg (A) with the holes in the dryer frame corner, and fasten in place using the bolts and nuts that were previously removed (E and F).
3. Align the holes in the fan and heater support leg (A) with the hole in the basket corner leg (G).
4. Fasten the fan and heater support leg (A) to the frame using bolts (B) and nuts (C).

Figure 3-3 *Installing the fan and heater support leg*



Callout	Part number	Description
A	* D01-XXXX	Refer to the Leg Stand Height Options, page 24 for leg stand.
B	S-3883	Original bolts installed on dryer (1/2 in. - 13 x 1 3/4 in. YDP grade 8 HHTB bolt)
C	S-6493	Original nuts installed on dryer (1/2 in. - 13 zinc grade 2 deformed lock nut)

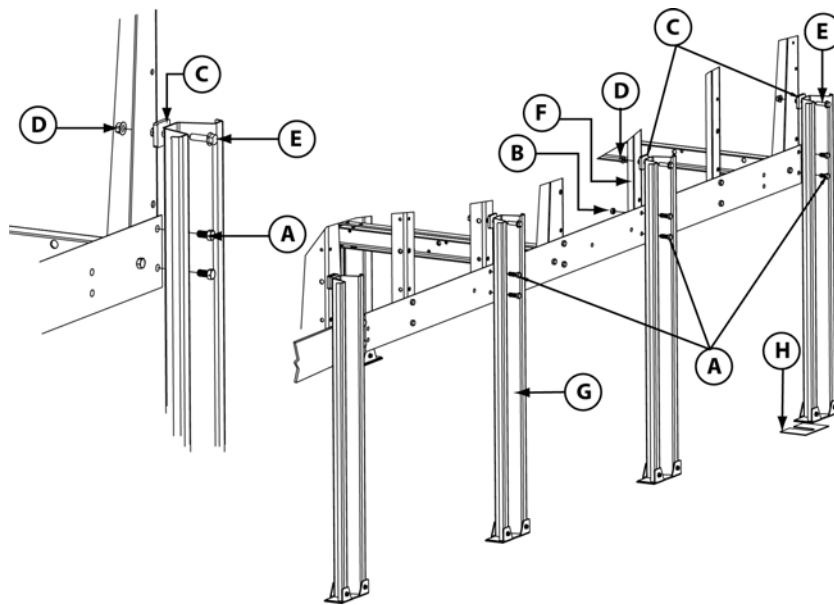
NOTE: * All 48 in. legs require cross braces to be installed. Refer to PNEG-1860 for cross brace installation instructions.

Installing a Leg Stand Along the Dryer Frame

If not using concrete blocks, you must install leg stands to the dryer frame to support the dryer.

1. Remove the two bolts and nuts from the dryer frame at the location where the leg stand is to be installed (A and B).
2. Align the holes in the leg stand (G) with the holes in the dryer frame, and fasten in place using the bolts and nuts that were previously removed (A and B).
3. Align the top hole in the leg stand (G) with the hole in the basket leg (F).
4. Fasten the legs together using a bolt (E), shim (C), and nut (D).
5. For a secure fit, use the shim plates (H) to make any minor adjustments to the leg height.

Figure 3-4 Installing leg stands along dryer frame



Callout	Part number	Description
A	S-3883	Original bolts installed on dryer (1/2 in. - 13 X 1 3/4 in. YDP grade 8 HHTB bolt)
B	S-6493	Original nuts installed on dryer (1/2 in. - 13 zinc grade 2 deformed lock nut)
C	D01-1221	Shim dryer stand to dryer
NS	S-2121	1/2 in. x 1 3/8 in. flat washer
D	S-8315	1/2 in. -13 zinc lock nut
E	S-3728	1/2 in. - 13 x 1 1/2 in. YDP grade 8 or 8.2 HHTB bolt
F	D01-0007	Basket corner leg
G	* D01-XXXX	Refer to the Leg Stand Height Options, page 24 for leg stand.
H	FC-42077	Shim plate

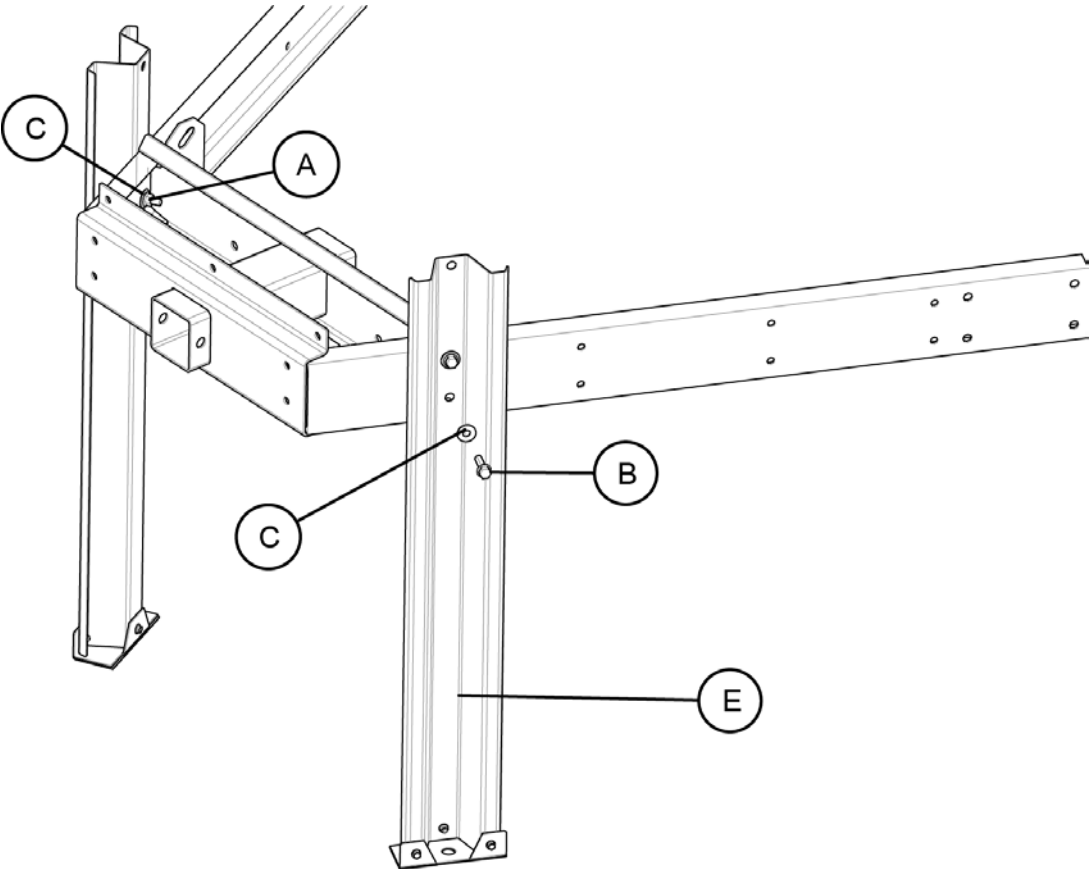
NOTE: * All 48 in. legs require cross braces to be installed. Refer to PNEG-1860 for cross brace installation instructions.

Installing the Leg Stands to the Hitch Frame

Leg stands must be used to support the dryer.

- 1. Position the leg stands (E) to the sides of the hitch frame and align them with the first set of hole towards the front.
- 2. Fasten the legs to the channel using two bolts (B), four washers (C), and two nuts (A) per each leg.

Figure 3-5 Installing leg stands to the hitch assembly



Callout	Part number	Description
A	S-8315	1/2 in. -13 zinc lock nut
B	S-3728	1/2 in. - 13 x 1-1/2 in. YDP grade 8 or 8.2 HHTB bolt
C	S-2121	1/2 in. x 1-3/8 in. type A plated flat washer
E	* D01-XXXX	Refer to the Leg Stand Height Options, page 24 for leg stand.

NOTE: * All 48 in. legs require cross braces to be installed. Refer to PNEG-1860 for cross brace installation instructions.

4 Hitch Ladder

Topics Covered in this Chapter

- Hitch Ladder Packages
- Installing the Hitch Ladder Support Bracket on Quiet Dryer
- Installing the Hitch Ladder on Quiet Dryer
- Installing the Ladder to the Ladder Standoff Brackets
- Installing the End Cap to the Ladder

Hitch Ladder Packages

Hitch ladders are available in three different sizes. You must use the ladder package that is specific to your dryer size.

Table 4-1 Available hitch ladder packages

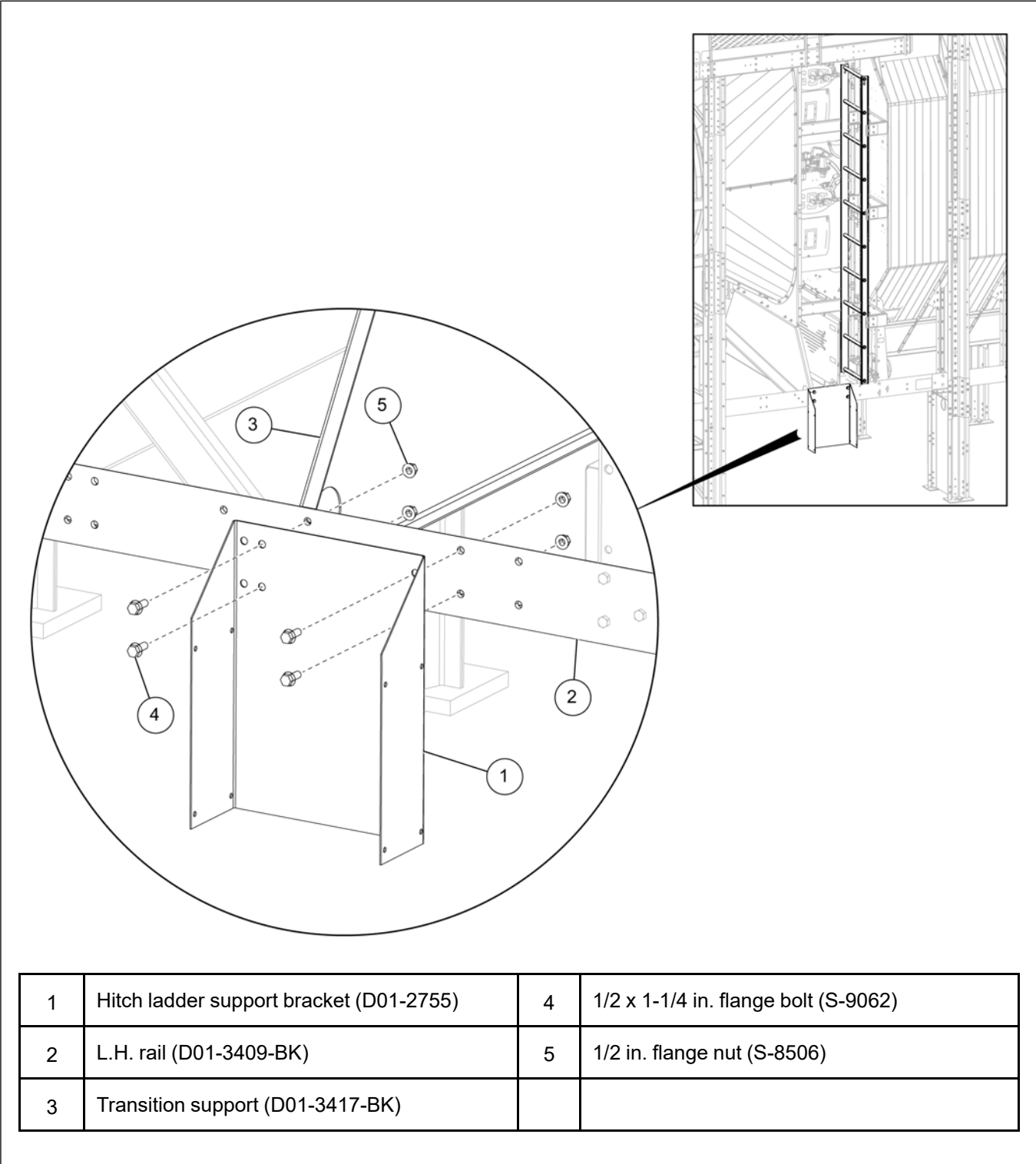
Part number	Description
2FOOTRF	2 ft. roll formed ladder assembly used for 16 in., 18 in. and 24 in. dryer heights
3FOOTRF	3 ft. roll formed ladder assembly used for 30 in. and 36 in. dryer heights
4FOOTRF	4 ft. roll formed ladder assembly used for 42 in. and 48 in. dryer heights

Installing the Hitch Ladder Support Bracket on Quiet Dryer

The hitch ladder is used to access the front of the dryer opposite of the control box side of the dryer.

Install the hitch ladder support bracket (1) to the left side rail (2) and transition support (3) as shown using flange bolts (4) and flange nuts (5).

Figure 4-1 *Installing the hitch ladder support bracket to the left side rail*

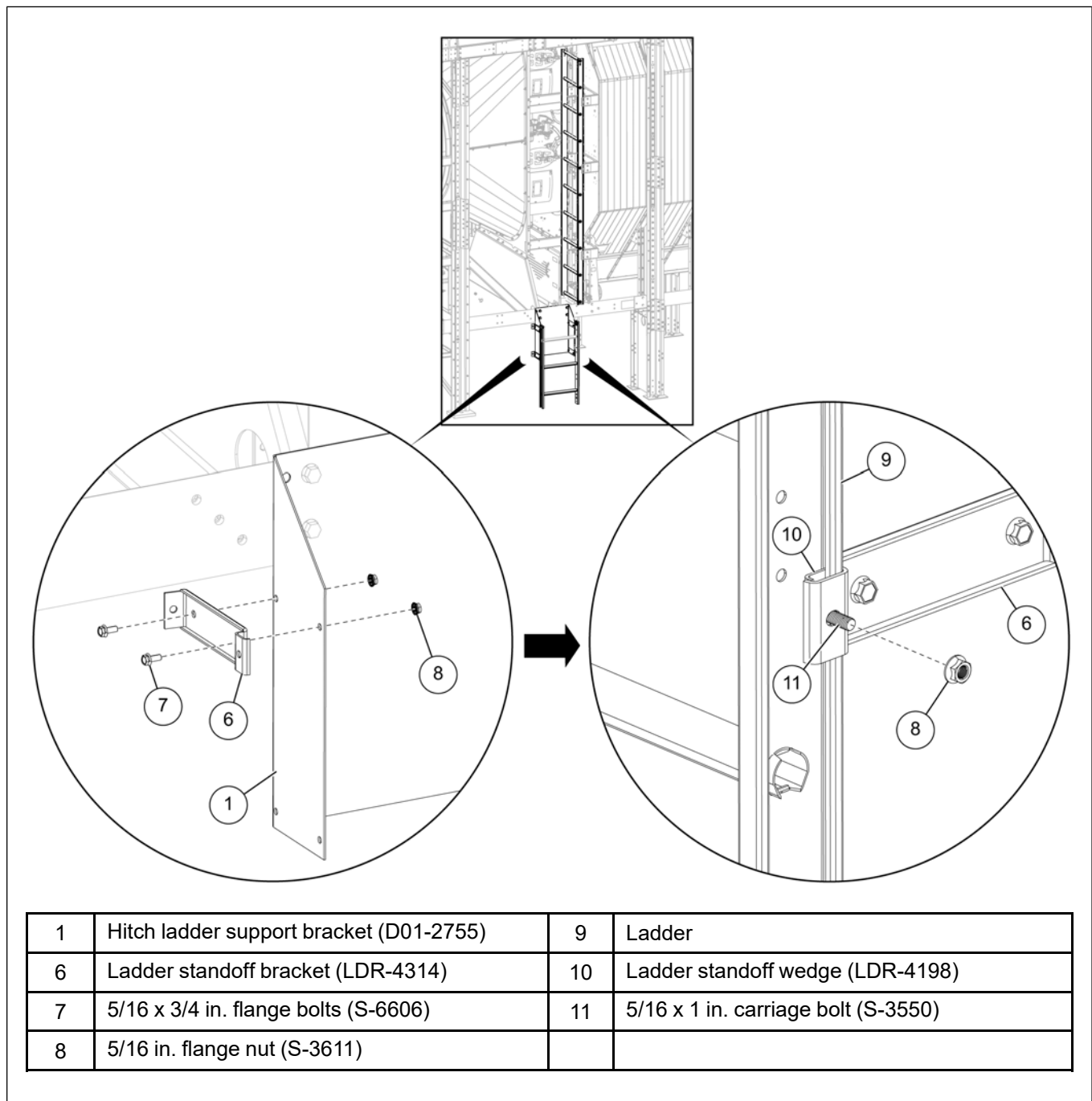


Installing the Hitch Ladder on Quiet Dryer

The ladder standoff brackets secure the ladder to the ladder support bracket, thus ensuring safe access to the front of the dryer.

1. Align the holes in the ladder standoff brackets (6) with the holes on the side of the hitch ladder support bracket (1).
2. Fasten the four standoff brackets (6) to the hitch ladder support bracket (1) using flange bolts (7) and flange nuts (8).
3. Attach the ladder (9) to the standoff brackets (6) using standoff wedge (10), carriage bolt (11) and flange nut (8).

Figure 4-2 *Installing the ladder to the hitch ladder support bracket*

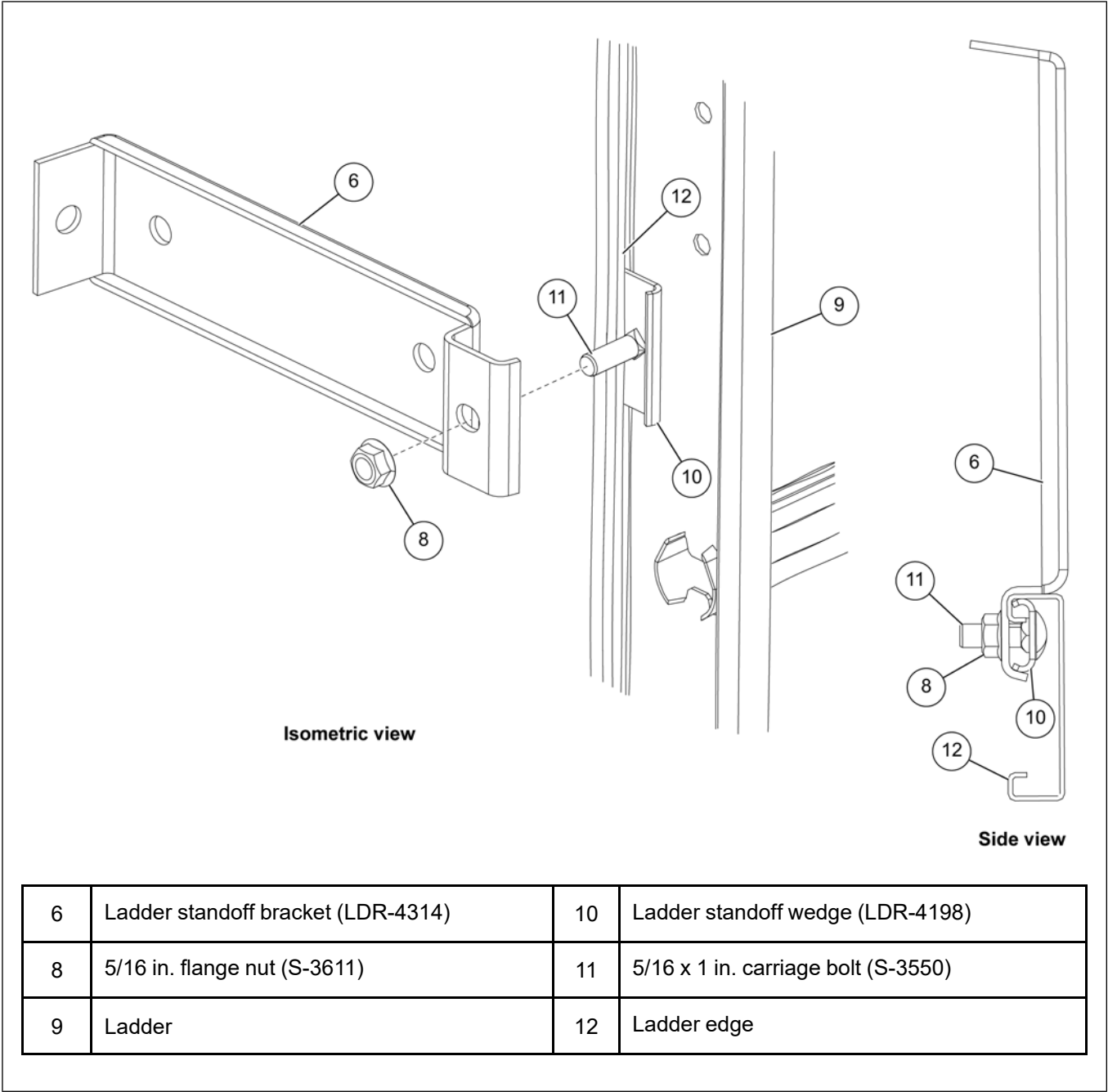


Installing the Ladder to the Ladder Standoff Brackets

Standoff brackets are used to support the ladder along it's vertical length and secure the ladder to the equipment.

- 1. Install the carriage bolt (11) through the standoff wedge (10).
- 2. Hook the standoff wedge assembly (10) under the ladder edge (12).
- 3. Place the standoff bracket (6) onto the carriage bolt (11) and fasten in place with flange nut (8). Leave the flange nut (8) loose to allow the ladder to slide into position before fully tightening.
- 4. Install all standoff brackets (6) and adjust the ladder (9) vertically into position.
- 5. Fully tighten the carriage bolts (11) and flange nuts (8).

Figure 4-3 Detail of the standoff bracket

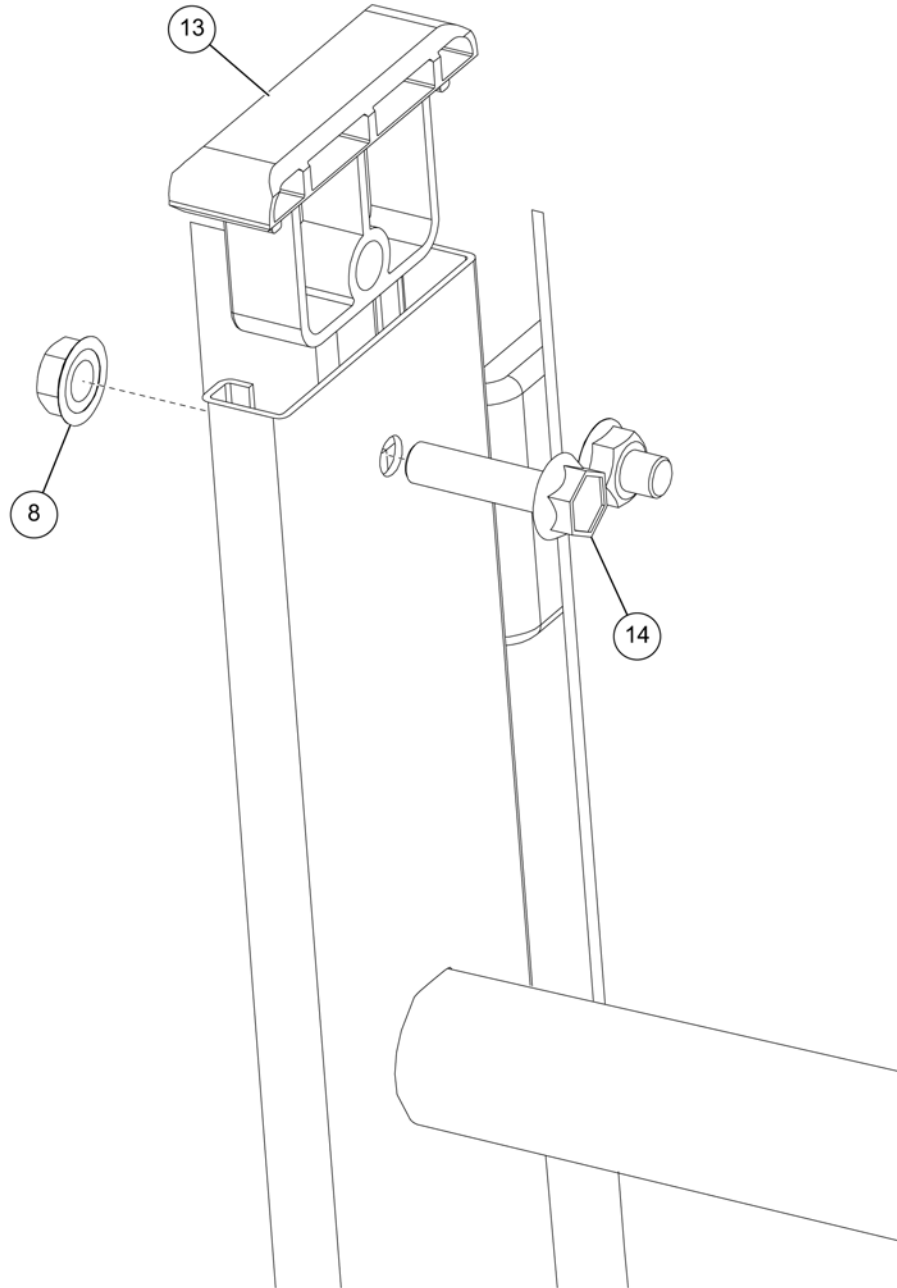


Installing the End Cap to the Ladder

The end cap helps to protect your hands from the sharp edges on the ends of the ladder.

1. Install the end caps (13) to both the right and left side of the ladder by snapping the end caps (13) into the top of the ladder.
2. Secure the end cap (13) in place using a flange bolt (14) and flange nut (8).

Figure 4-4 End cap assembly



8	5/16 in. flange nut (S-3611)	14	5/16 x 1 in. flange bolt (S-7470)
13	Ladder end cap (LDR-5011)		

NOTES

5 Rear Access Ladder

Topics Covered in this Chapter

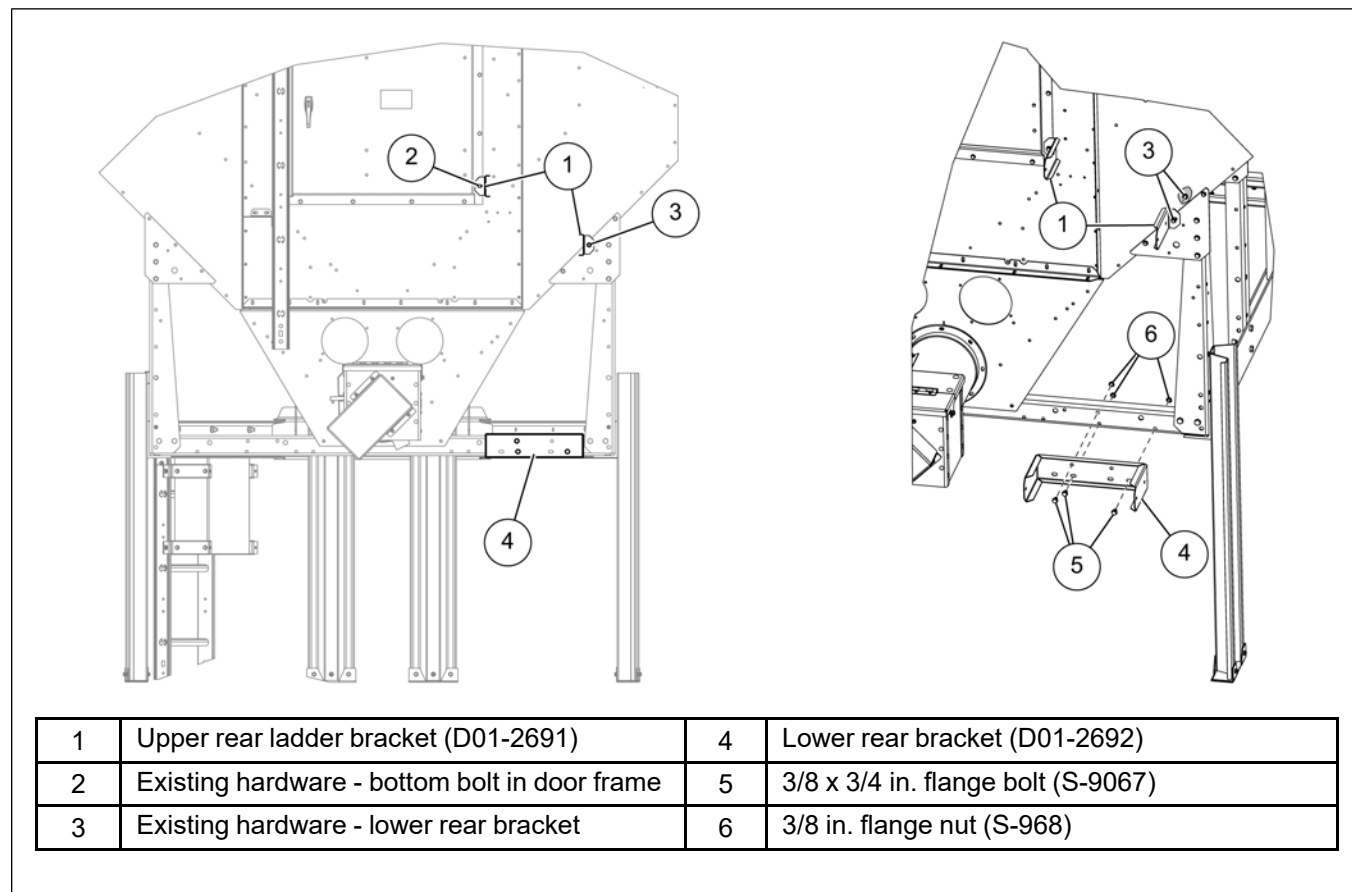
- Installing the Rear Ladder Support Brackets
- Installing the Ladder Standoff Brackets to the Rear Ladder Support Brackets

Installing the Rear Ladder Support Brackets

The rear ladder support brackets attach directly to the dryer and support the ladder standoff brackets.

1. Locate the two upper rear ladder bracket installation locations (1) and remove the existing hardware (2 and 3).
2. Install one upper rear ladder bracket (1) by aligning it with the bottom bolt in the door frame (2) and fasten with the previously removed hardware.
3. Install the second upper rear bracket (1) by aligning it with the middle bolt in the gusset plate (3) and fasten with the previously removed hardware.
4. Align the holes in the lower rear bracket (4) with the holes in the dryer frame and fasten with three flange bolts (5) and flange nuts (6).

Figure 5-1 *Installing the rear ladder support brackets*

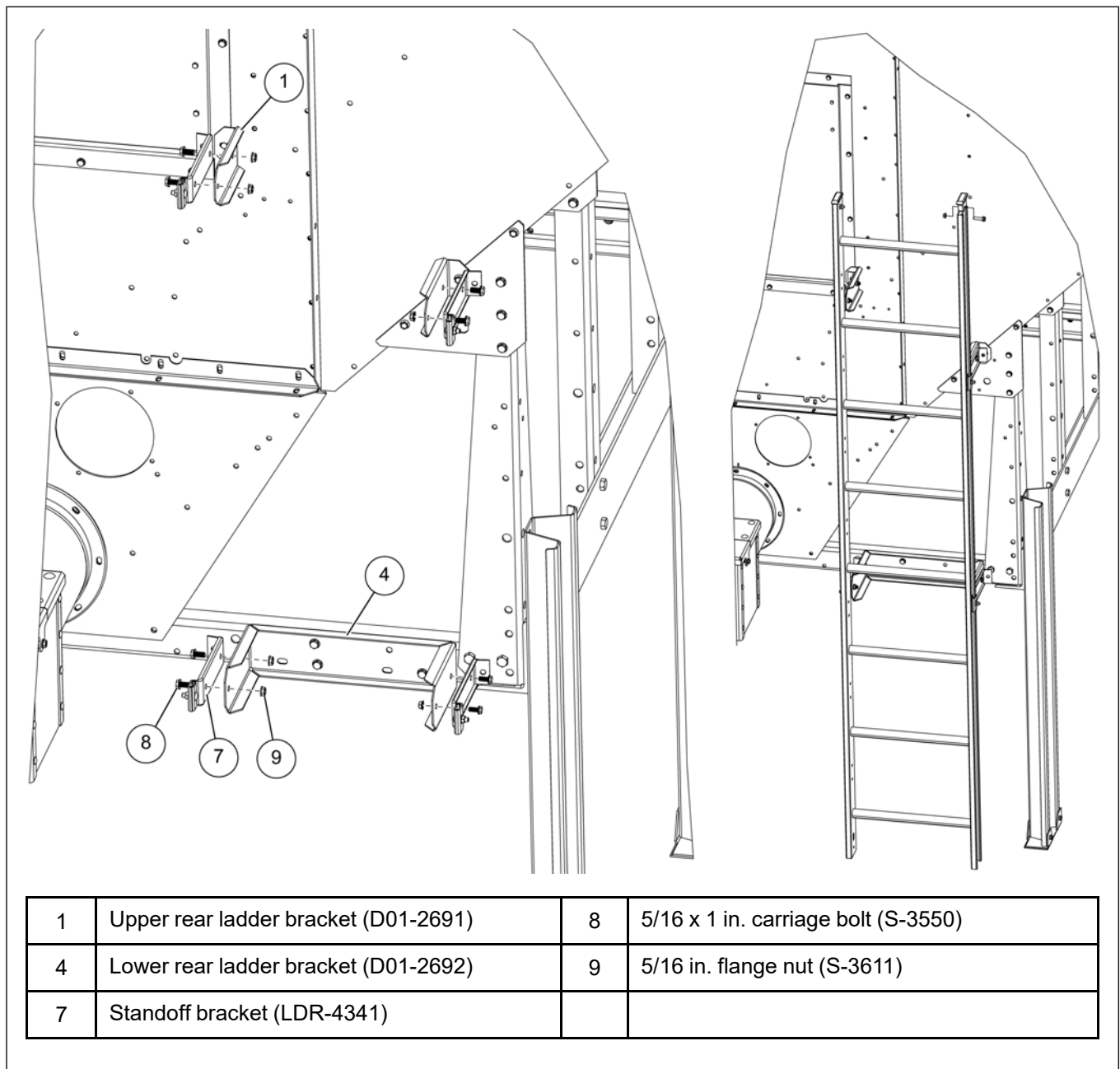


Installing the Ladder Standoff Brackets to the Rear Ladder Support Brackets

The ladder standoff brackets allow the ladder to be easily adjusted and secured to the dryer.

1. Install the ladder standoff brackets (7) to the lower rear ladder support bracket (4), using carriage bolts (8) and flange nuts (9).
2. Install the ladder standoff brackets (7) to the upper rear ladder support brackets (1), using carriage bolts (8) and flange nuts (9).
3. Install the ladder to standoff brackets, refer to [Installing the Ladder to the Ladder Standoff Brackets, page 32](#).
4. Install the end caps to the ends of the ladder, refer to [Installing the End Cap to the Ladder, page 33](#).

Figure 5-2 Installing the ladder standoff bracket to rear ladder support bracket



6 Installing the Wet Bin

Topics Covered in this Chapter

- Raising the Load Auger
- Securing the Dryer Wet Bin Sides
- Installing the Belt Guard and Load Motor
- Installing the Drive Sheaves and Belts
- Installing the Belt Guard Cover
- Installing the Grain Intake Hopper
- Dryer Wet Bin Parts List

Raising the Load Auger

You must raise the load auger before you can install the dryer wet bin.

1. To raise the load auger:
 - For dryers 8 ft. (2.44 m) use the handrails (1).

Figure 6-1 Handrail location for dryers 8 ft. (2.44 m) in length

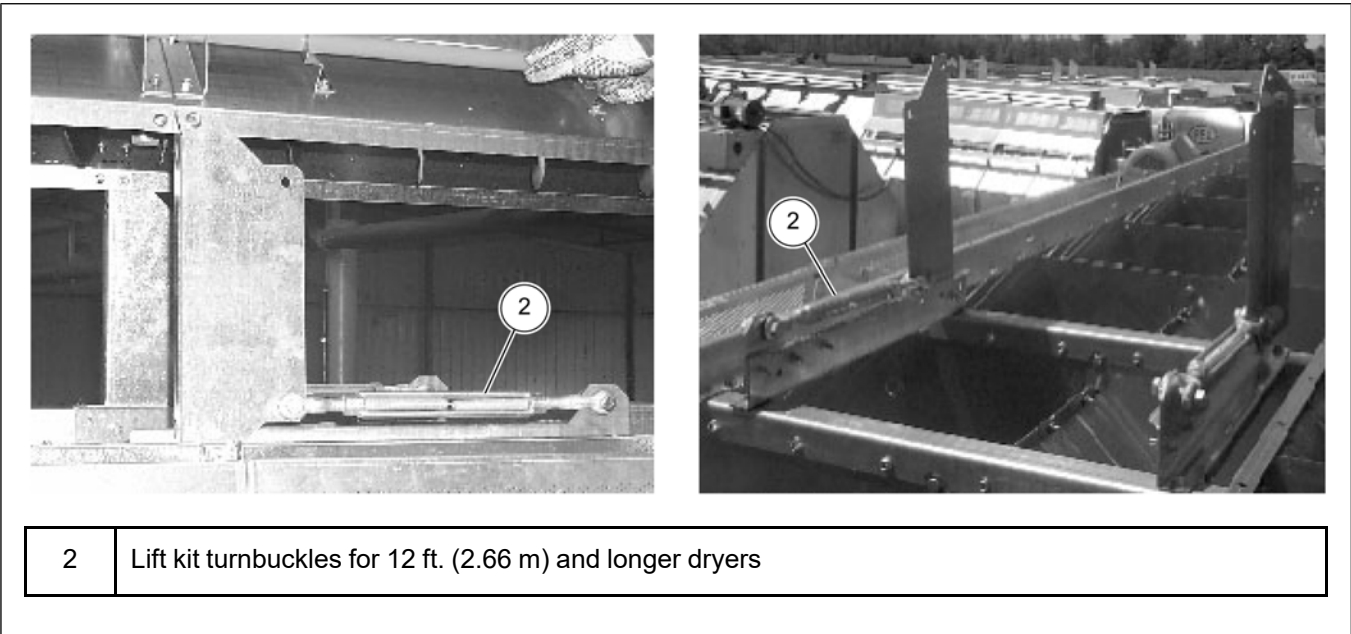


1	Handrails for 8 ft. (2.44 m) dryer
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Chapter 6: Installing the Wet Bin

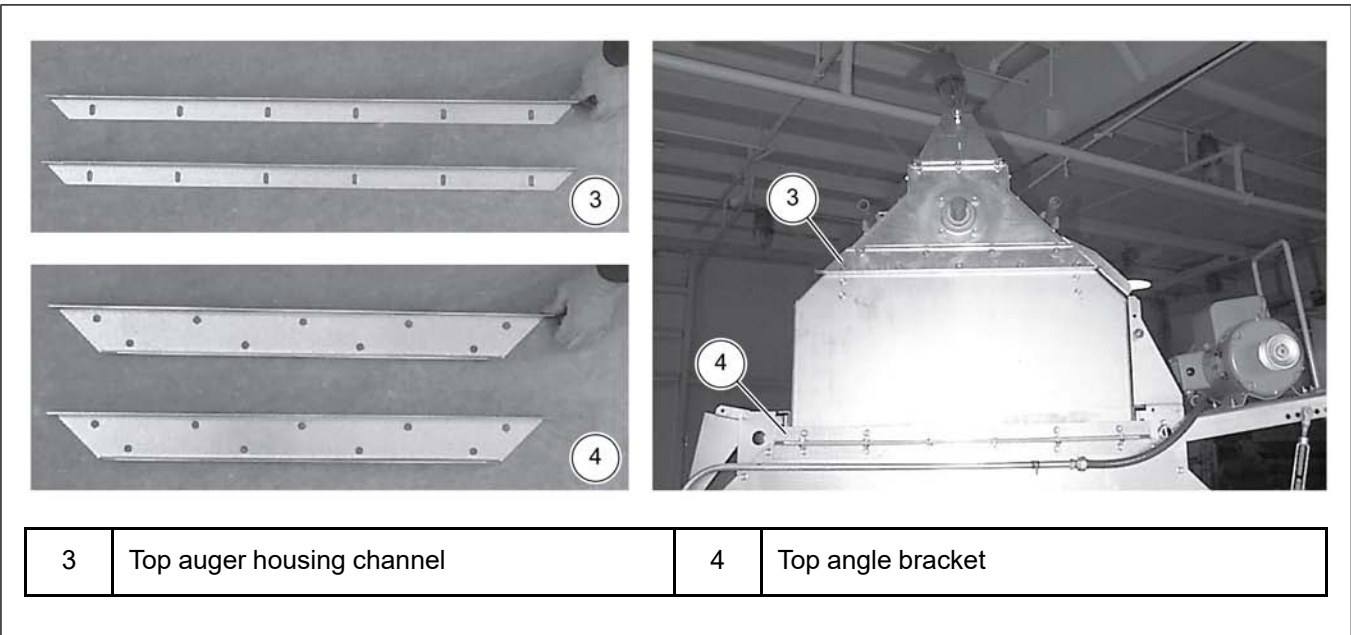
- For dryers 12 ft. (2.66 m) or longer, turn the turnbuckles on the lift kit (2).

Figure 6-2 Turnbuckle location for dryers 12 ft. (2.66 m) and longer



2. Bolt the top angle brackets (4) to the angle brackets already installed, positioning the brackets back-to-back. Brackets are located on the front and rear of the dryer, refer to the [Figure 6-3, page 38](#).
3. Bolt the load auger housing channel (3) to the front and rear of the ends of the dryer wet bin.

Figure 6-3 Angle brackets and housing channels



4. Once the auger assembly is securely bolted, unbolt the lift kit legs and lower them back into their shipping position.

Securing the Dryer Wet Bin Sides

After having raised the load auger, you must install the side panels so that the dryer wet bin can receive and hold the incoming grain.

1. At each end of the dryer, attach the end plate connectors to the corners of the dryer wet bin, refer to the [Figure 6-4, page 39](#).
2. Raise the dryer wet grain bin sides (6) and secure them to the end plate connectors (5), refer to the [Figure 6-5, page 39](#).

NOTE: Do not connect the side of the dryer wet bin that is adjacent to the load auger motor. Leave this side open to allow for easy access when attaching the belt guard body.

Figure 6-4 The end plate connectors of the dryer wet bin

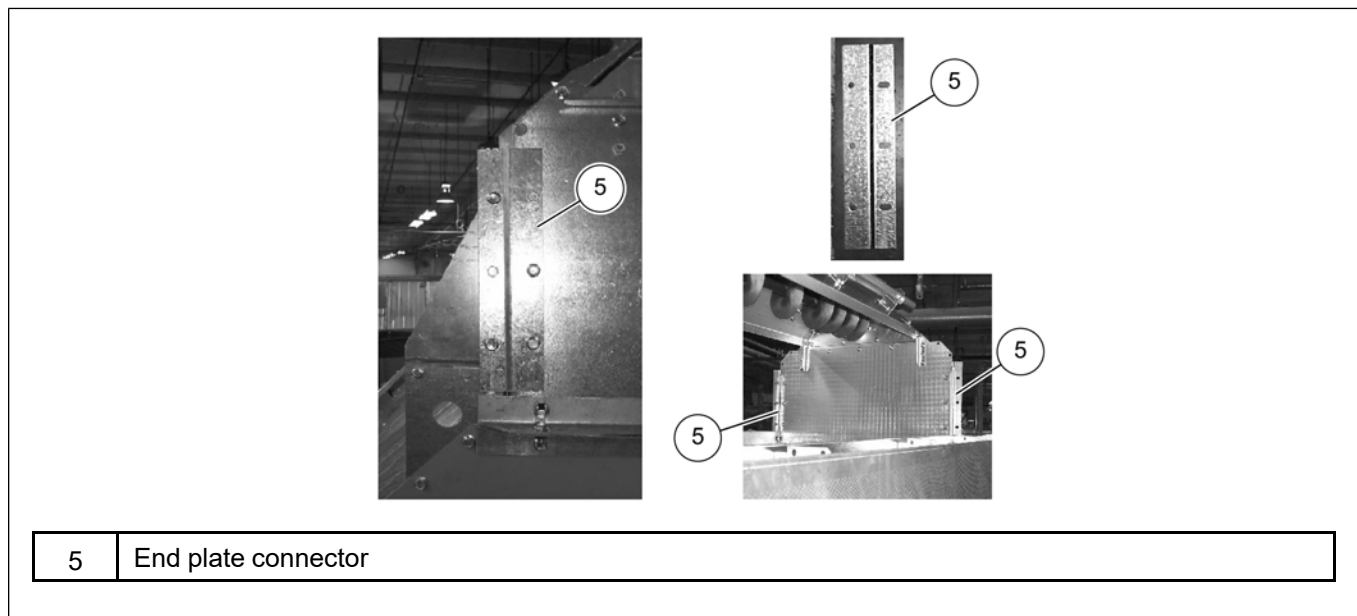
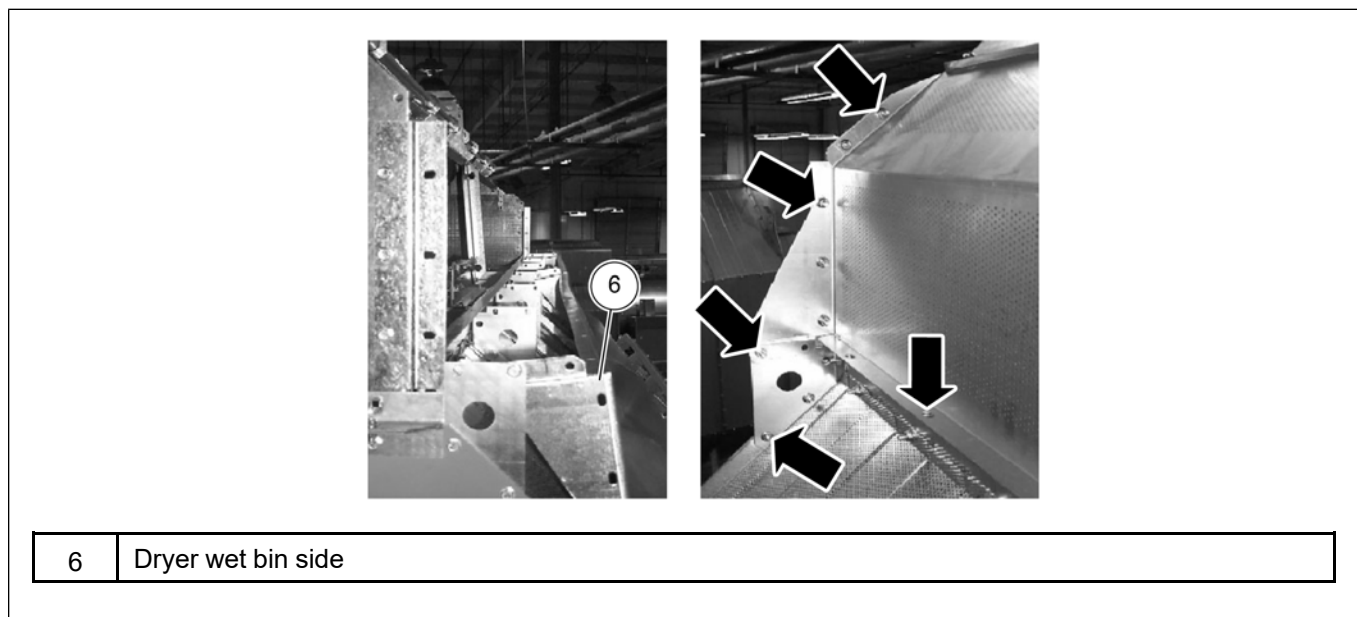


Figure 6-5 Connections for the dryer wet bin sides

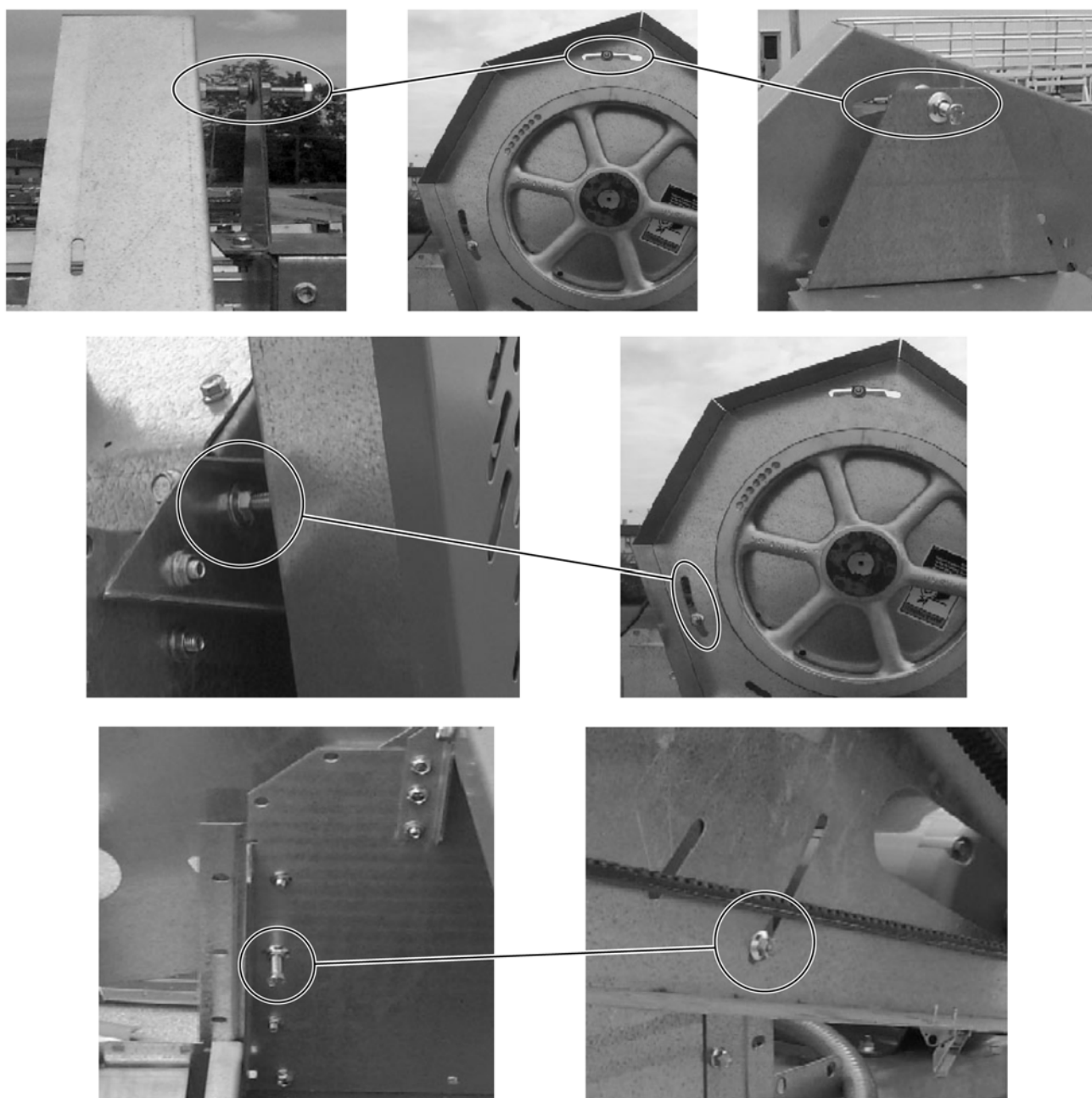


Installing the Belt Guard and Load Motor

To protect you from the load motor belt, you must install the belt guard after installing the load motor.

1. Install the belt guard mounting bracket to the top of the dryer wet bin.
2. Lift the load motor and install 0.50 x 6 in. turnbuckles to the motor mount (D01-0173) and motor mount anchor bracket (D01-0170) with two turnbuckle pins and two cotter pins.
3. Install the three bolts for the belt guard body.
4. Place the belt guard body onto the bolts, centering the cutout in the belt guard body over the drive shaft of the load motor.
5. Loosely secure with nuts. These bolts will be tightened after the belt is adjusted for clearance.

Figure 6-6 Bolt locations for belt guard body

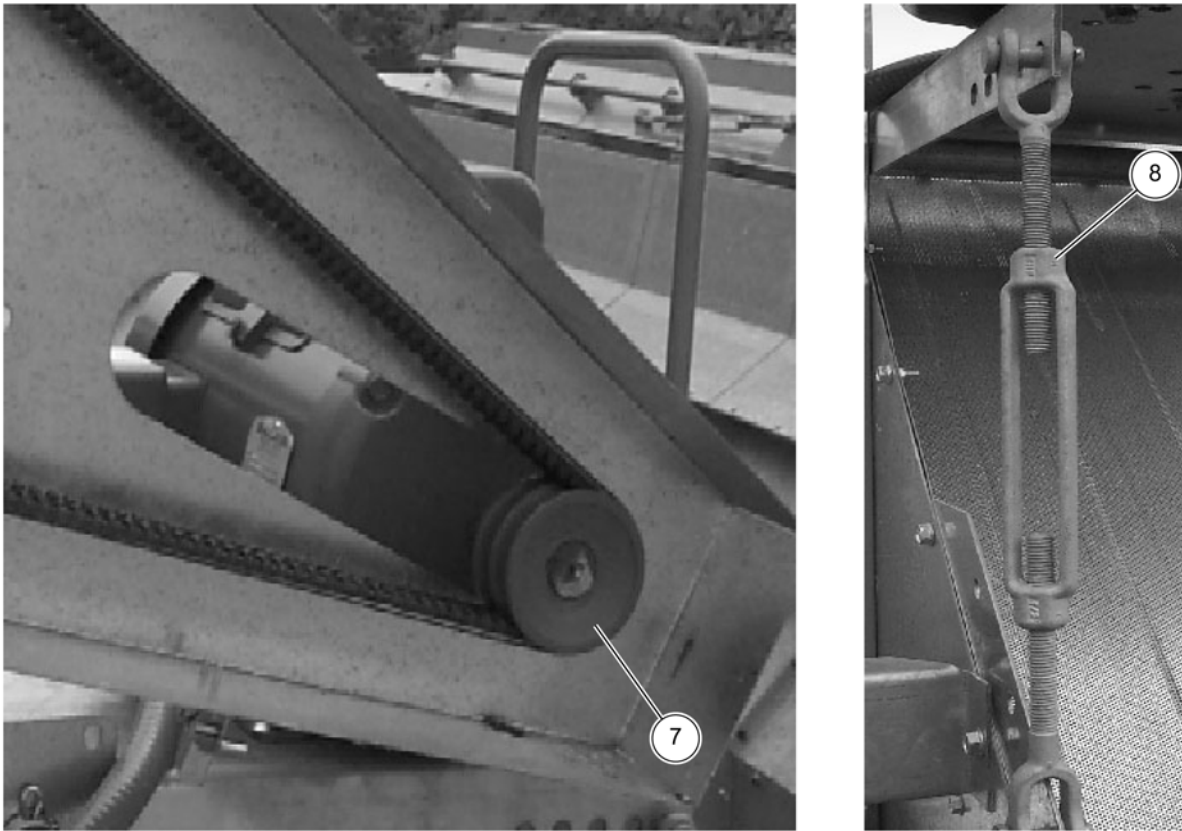


Installing the Drive Sheaves and Belts

To ensure that the load auger rotates, you must install the drive sheaves and belts. The motor turns the drive sheaves and belts and the drive sheaves and belts turn the load auger.

1. Insert the key into the keyway on the auger drive shaft.
2. Place 16 in. sheave (D52-0001) on the auger drive shaft.
3. Insert the 1-1/2 in. split tapered Q1 bushing on the auger drive shaft and infix the bushing with a wooden or non-metal mallet.
4. Install three bolts into the bushing. If necessary, smooth the load auger drive shaft with hardware cloth.
5. Insert the key into keyway and slide the motor drive sheave onto the drive shaft of the load motor.
6. Secure the drive sheave with the setscrew.
7. Thread the two BX97 belts from the motor drive pulley to the 16 in. sheave.
8. Check the alignment of the belts and sheaves to ensure that they are aligned.
9. To tighten belts, turn the turnbuckle on the anchor bracket of the motor mount.
10. Adjust the clearance of the belt guard body so that there is no contact with moving parts and tighten the adjustment hardware.

Figure 6-7 Load motor sheave and motor adjustment turnbuckle



7	Load motor sheave	8	Motor adjustment turnbuckle
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Installing the Belt Guard Cover

To easily remove the cover when performing maintenance to the drive belts and sheaves, you must install the belt guard cover using its latches.

1. Insert the tabs on the belt guard cover into the slots on the belt guard body.
2. Engage the latches, one on the top and two on the bottom, refer to the [Figure 6-8, page 42](#).
3. Install the dryer wet bin side that was left open to allow for easy access to the belt guard body.

Figure 6-8 Latches for the belt guard cover

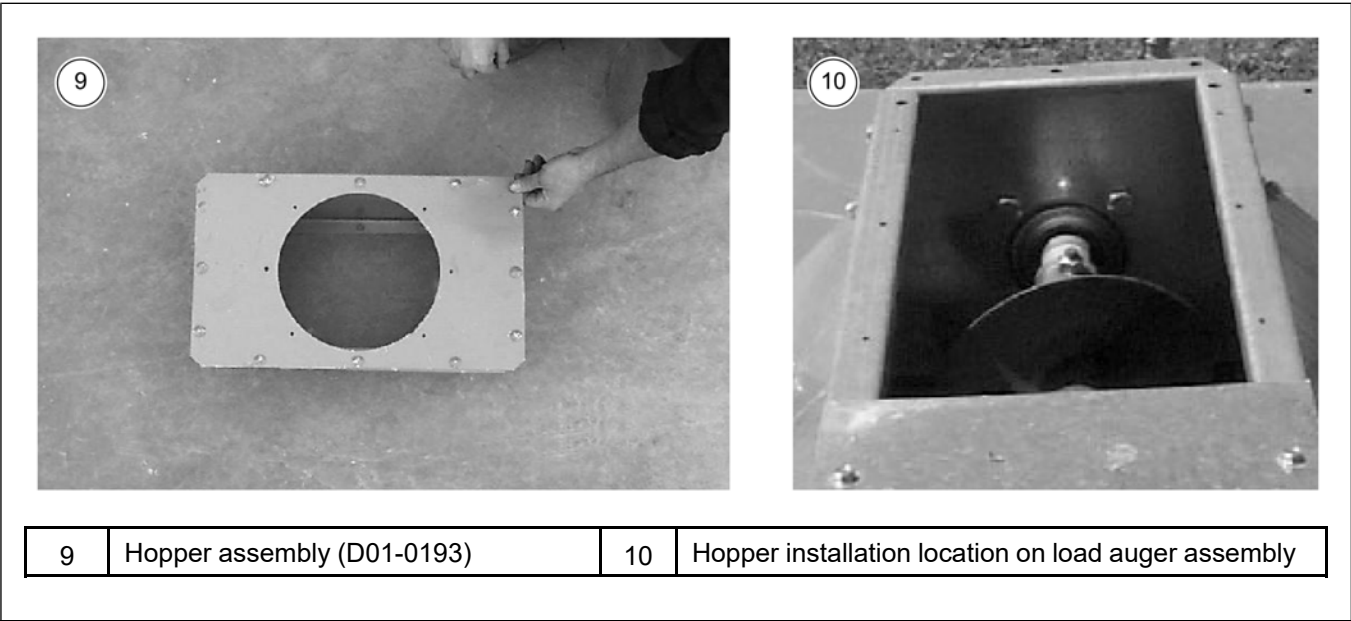


Installing the Grain Intake Hopper

To ensure that the dryer receives the incoming wet grain, you must connect the grain intake hopper between the dryer wet bin and the equipment that supplies the wet grain.

1. Locate the hopper assembly (D01-0193) over the grain intake opening at the top rear of the dryer.
2. Connect the hopper assembly to the dryer wet grain bin by using six 1/4 x 3/4 in. self-drilling screws (S-6497), six 5/16 x 3/4 in. flange bolts (S-6606) and six 5/16 in. flange nuts (S-3611).

Figure 6-9 Hopper assembly and hopper installation location

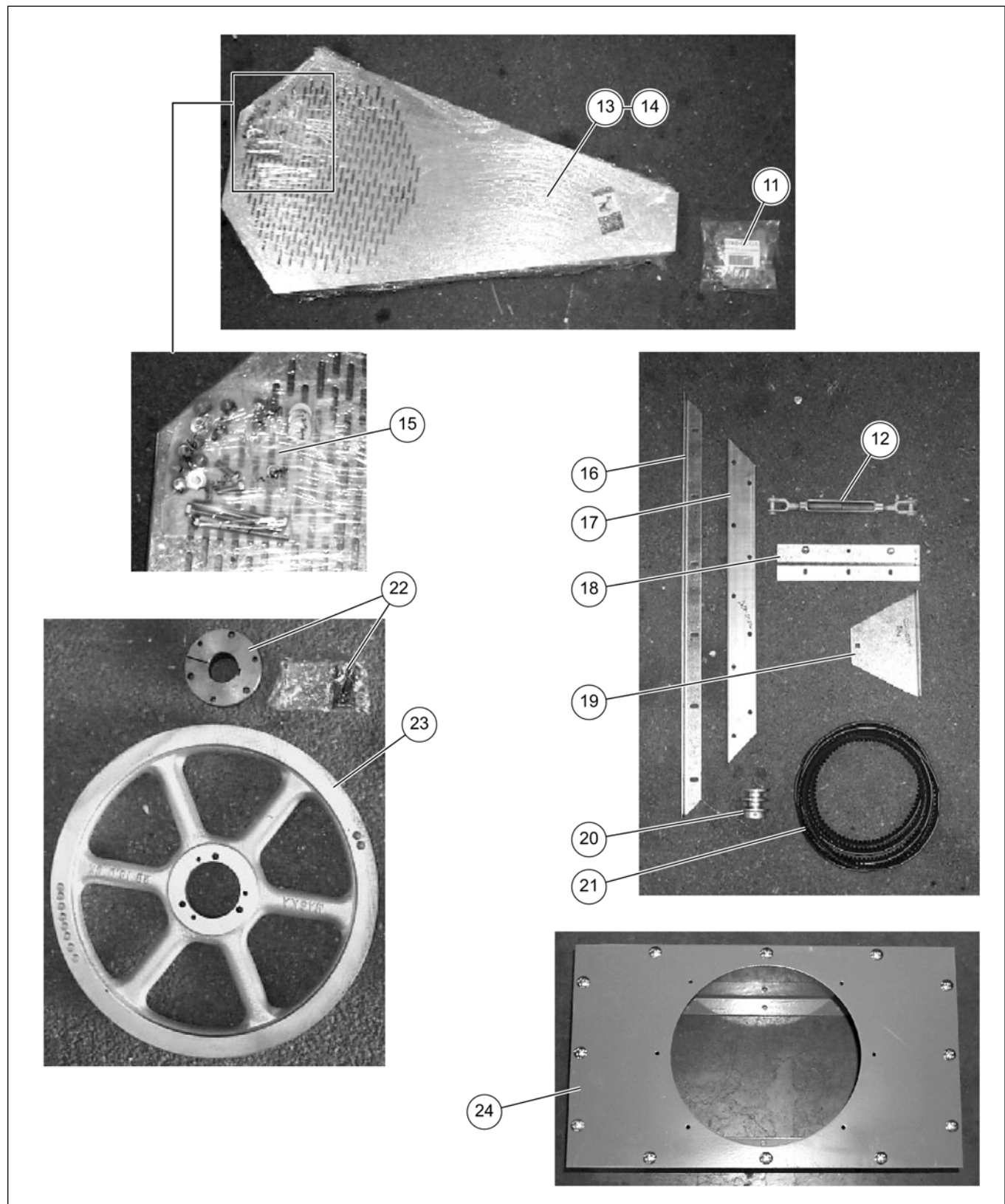


9	Hopper assembly (D01-0193)	10	Hopper installation location on load auger assembly
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Dryer Wet Bin Parts List

Refer to the below dryer wet bin parts list for easy identification of parts.

Figure 6-10 Dryer wet bin parts



Chapter 6: Installing the Wet Bin

Table 6-1 *Dryer wet bin parts list*

Ref #	Part #	Description	Qty.
11	-	Dryer wet bin hardware package	1
12	D01-0465-PP	Turnbuckle, 1/2 x 6 in.	1
13 & 14	D01-1182-Y	Top auger belt guard assembly (includes #13, #14 and #15)	1
13	D01-0452-Y	Top auger belt guard cover (not shown)	1
14	D01-0453	Top auger belt guard body	1
15	-	Belt guard assembly mounting hardware, refer to the Table 6-2, page 44 .	-
16	D01-0044	Top angle bracket, front and rear	2
17	D01-0156	Top auger housing channel	2
18	D01-1526	Wet bin end plate connector	4
19	D01-0155	Belt guard mounting bracket	1
20	NA	Motor shaft sheave (determined by the dryer model)	1
21	D01-0464	Belts BX97	2
22	D32-0019	Bushing Q1 - 1-1/2 in. split taper (for auger shaft sheave and includes hardware)	1
23	D52-0001	Sheave, 16 in. grip-belt 2 groove	1
24	D01-0193-Y	Hopper assembly	1

Table 6-2 *Hardware packages for the belt guard of the dryer wet bin*

Part #	Description	Qty.
S-6501	Bolt, HHTB 3/8-16 x 4 in. full thread grade 2 zinc	3
S-968	Nut, flange 3/8-16 in. wide flange grade 5 zinc	9
S-248	Washer, flat 3/8 in., 7/16 in. I.D., 1 in. O.D YDP	4
S-6606	Bolt, flange 5/16-18 x 3/4 in. clear grade 5 zinc	3
S-3611	Nut, flange 5/16-18 in. YDP grade 2	3
S-8671	Bolt, HHCS 3/8-16 x 1 in. YDP grade 8	2
S-4663	Nut, stover 3/8-16 in. grade 2 zinc	2

7 Moisture Sampler

Topics Covered in this Chapter

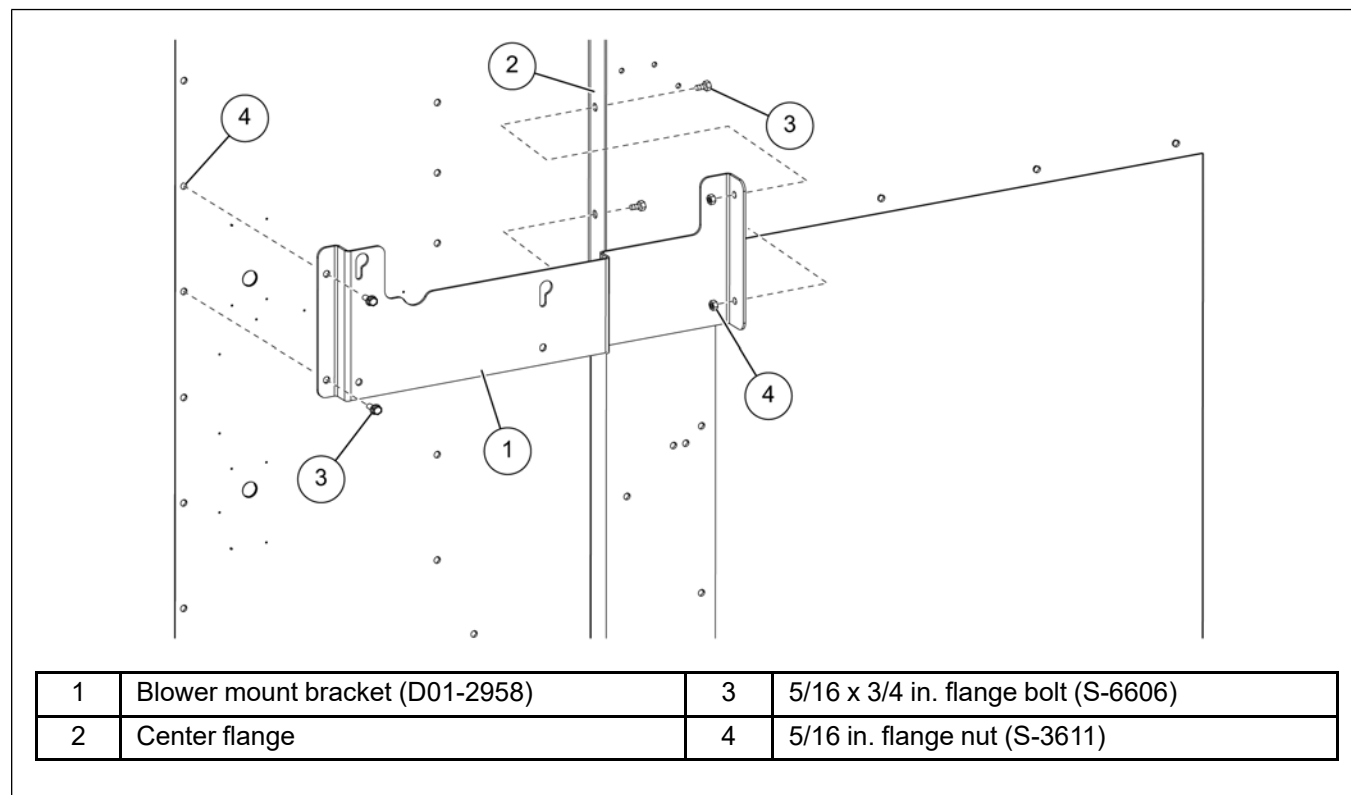
- Installing the Moisture Sampler
- Blower Cover Assembly Parts List (D04-1016)
- Moisture Sampler Hose Parts List (D04-1023)
- 220V Moisture Sampler Blower Wiring Diagram
- 400V Moisture Sampler Blower Wiring Diagram
- 480V Moisture Sampler Blower Wiring Diagram
- 600V Moisture Sampler Blower Wiring Diagram

Installing the Moisture Sampler

These instructions cover the moisture blower kits for 220V, 440V, 380V and 575V dryers.

1. Install the blower mount bracket (1) to the dryer using the middle set of holes in the center flange (2) and secure them using bolts (3) and nuts (4).

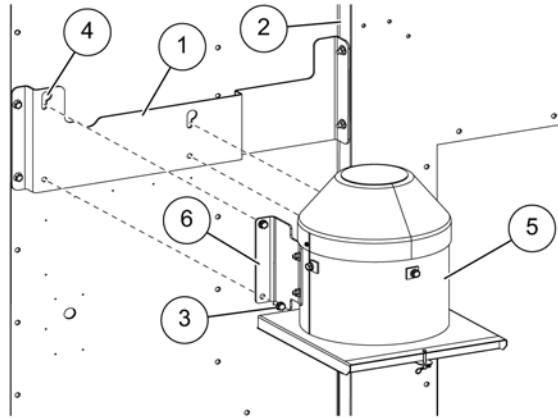
Figure 7-1 *Installing the blower mount bracket to the dryer*



Chapter 7: Moisture Sampler

2. Install the top two bolts (3) to the blower assembly brackets (6) leaving space between the bolt head and nut (4).
3. Slide the bolt heads into the slots on the blower mount bracket (1).
4. Install the bottom two bolts (3) in the blower assembly brackets and tighten all the bolts.

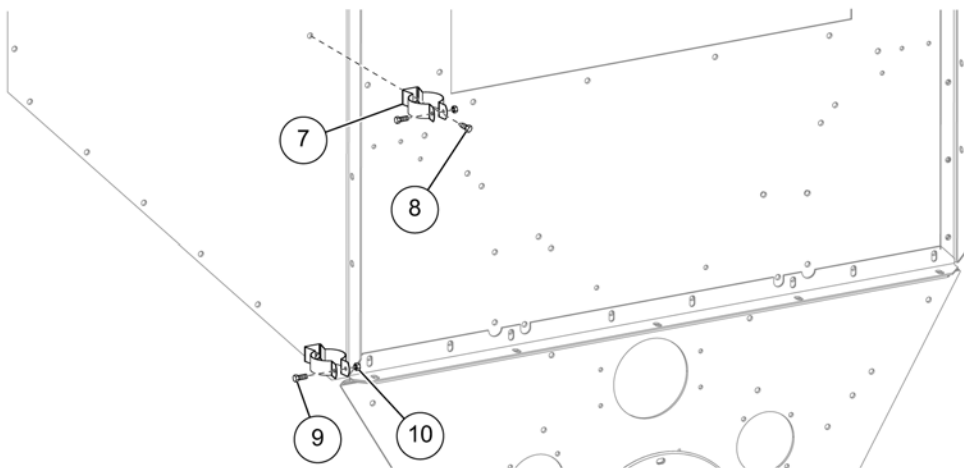
Figure 7-2 *Installing the blower to the bracket*



1	Blower mount bracket (D01-2958)	4	5/16 in. flange nut (S-3611)
2	Center flange	5	Blower assembly (D04-1016)
3	5/16 x 3/4 in. flange bolt (S-6606)	6	Blower assembly bracket (D01-2952 and D01-2959)

5. Install the conduit hangers (7) into existing bolt holes on the dryer using screws (8).

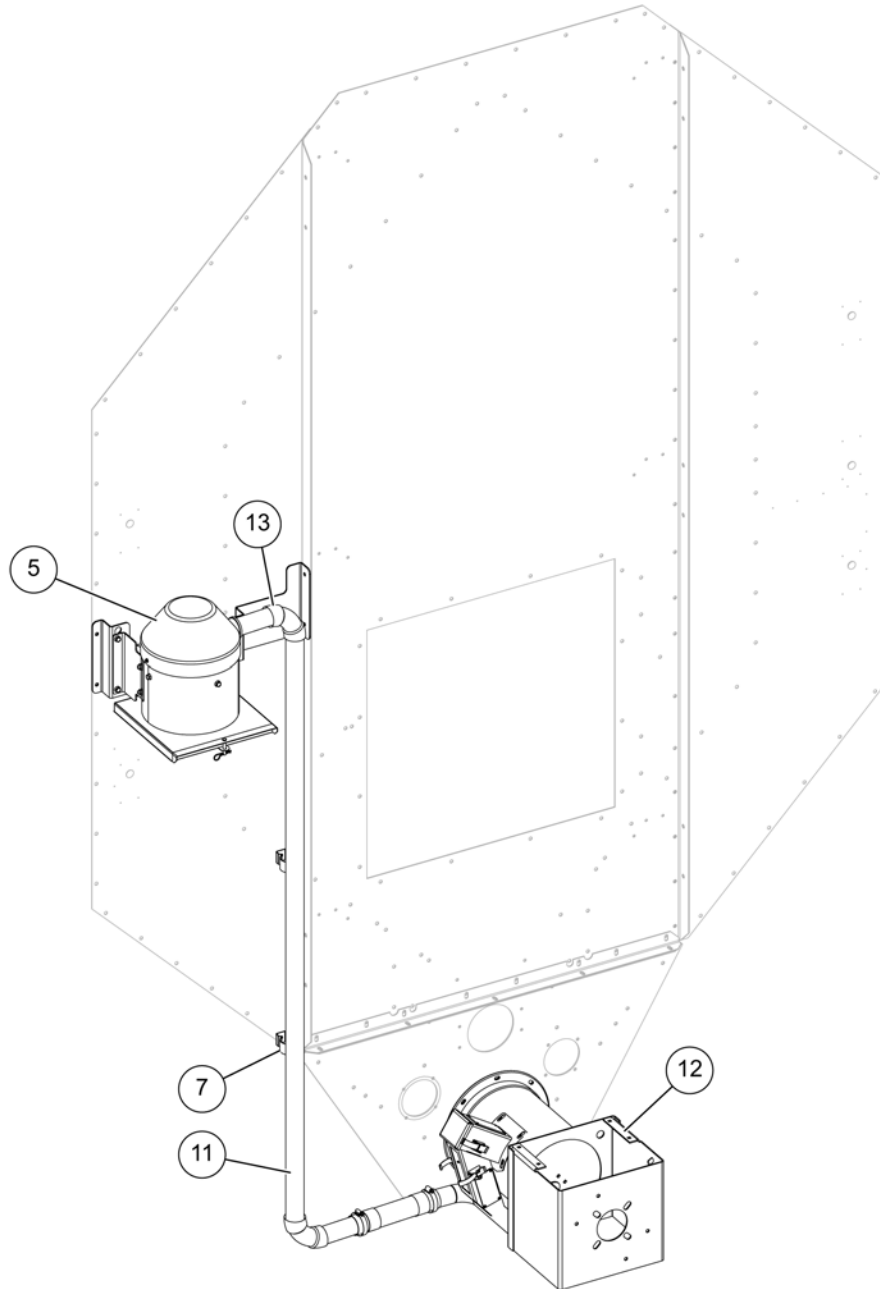
Figure 7-3 *Conduit hangers installation*



7	Conduit hangers (S-6643)	9	5/16 x 1 in. bolt (S-1196)
8	#10 x 5/8 in. self-drilling screw (S-280)	10	5/16 in. hex nut (S-400)

6. Install the pipe conduit (11) between the blower (5) and the unload (12) using a hose clamps (13) to fasten together each section. Guide the conduit through the conduit hangers (7).

Figure 7-4 *Hose installation*



5	Blower assembly (D04-1016)	12	Unload
7	Conduit hangers (S-6643)	13	Hose clamp (AP-0583)
11	Pipe conduit (D04-1023)		

Chapter 7: Moisture Sampler

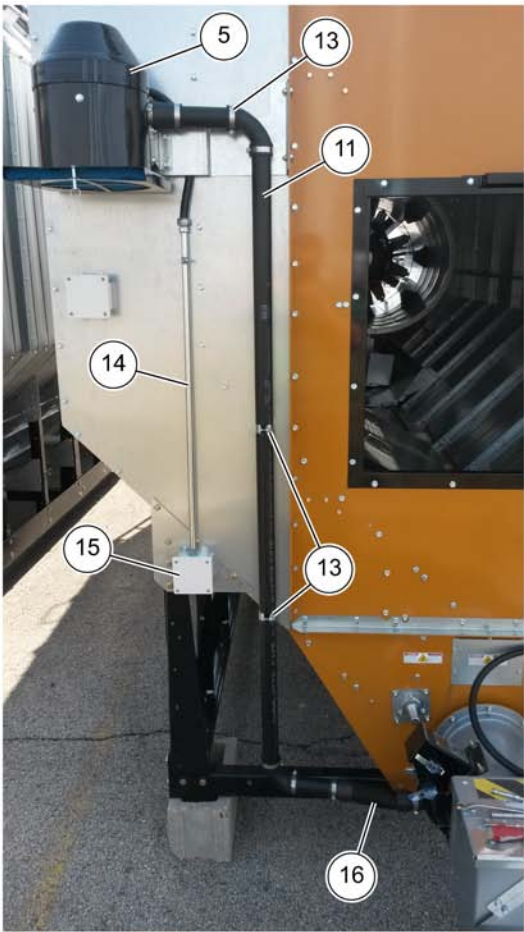
- 7. Install the electrical conduit (14) from the blower to junction box (15). Secure conduit with 1/2 in. clamp (HH-1096).
- 8. Install the electrical box to the gusset plate using four screws (S-995) and hex nuts (S-7931).



Make sure all power is locked out before beginning the work.

- 9. Install the wires through the electrical conduit (14) and connect the electrical wires according to the appropriate wiring diagrams. For wiring diagrams, refer to the [Figure 7-8 to Figure 7-11, page 51](#).

Figure 7-5 Conduit layout



5	Blower assembly (D04-1016)	14	Electrical conduit
11	Pipe conduit (D04-1023)	15	Junction Box
13	Hose clamp (AP-0583)	16	Flexible hose (D01-2973)

NOTE: *If the dryer has an auger extension, an additional piece of flexible hose (D03-1190) will be required. The longer lengths can be created by twisting one end of hose into another and ensuring the couplers are not necessary to extend the hose. Also, D03-1199 (12-15 in. hose clamp) can be used to support the flex hose by securing it to the auger extension.*

Blower Cover Assembly Parts List (D04-1016)

Figure 7-6 Blower cover assembly parts (D04-1016)

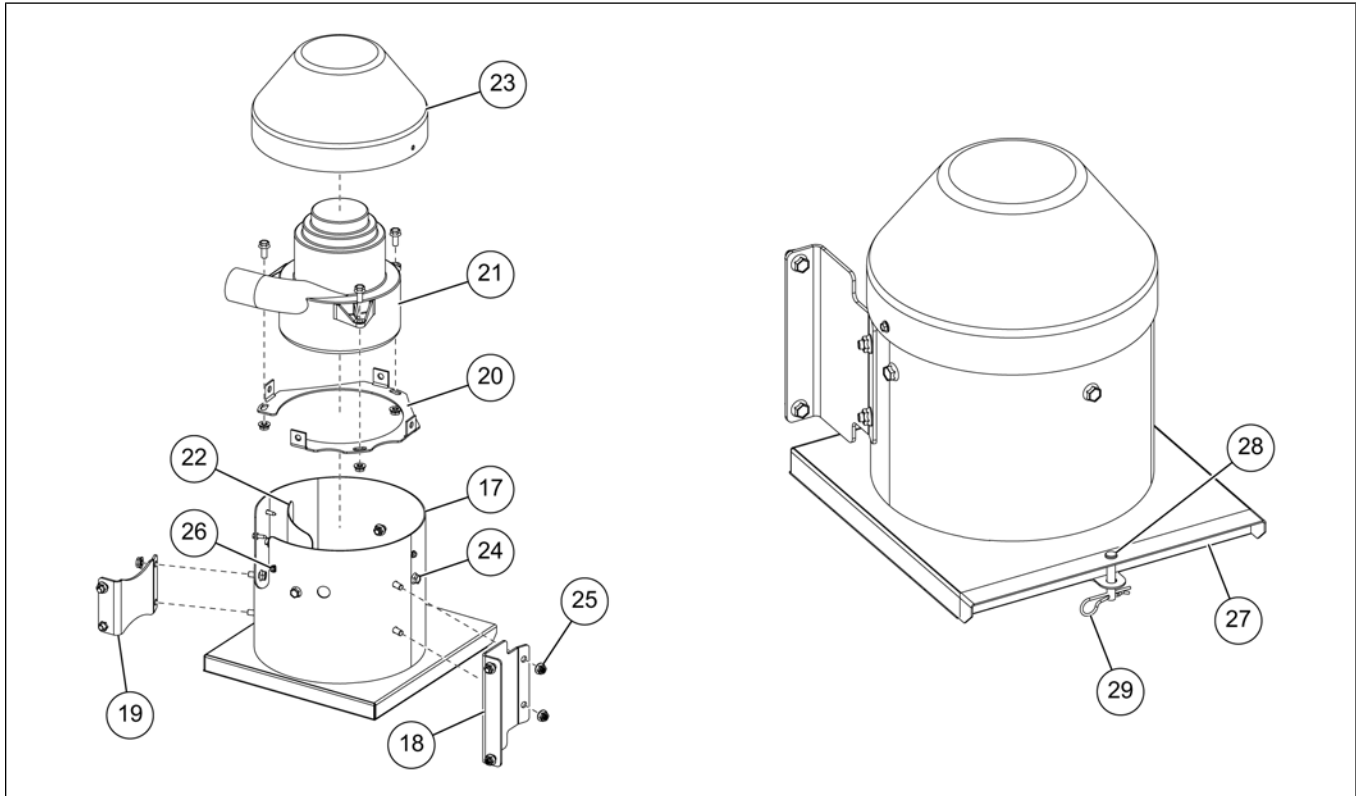


Table 7-1 Blower cover assembly part list (D04-1016)

Ref #	Part #	Description	Qty.
17	D04-1017-BK	Blower cover weldment	1
18	D01-2952	Moisture sampler blower housing bracket	1
19	D01-2959	Blower mount short bracket	1
20	D01-2953	Blower mount bracket	1
21	D03-1181	Blower 240V VAC, 50/60 Hz	1
22	D01-2954	Seal plate, blower housing	1
23	D04-1021-BK	10 in. vertical cap black	1
24	S-6606	Flange bolt 5/16 x 3/4 in. ZN grade 5	15
25	S-3611	Flange nut 5/16 in. YDP grade 2	15
26	S-280	Screw, SDS #10-16 x 5/8 in. HWH ZN	4
27	D03-1189	Filter, reusable rigid polyester air, 12 in. x 12 in. x 1 in.	1
28	D02-0028	Clevis pin 5/16 x 1-3/4 in. long zinc	1
29	S-7375	Cotter pin, hairpin 0.93 in. wire diameter	1

Moisture Sampler Hose Parts List (D04-1023)

Figure 7-7 Moisture sampler hose parts (D04-1023)

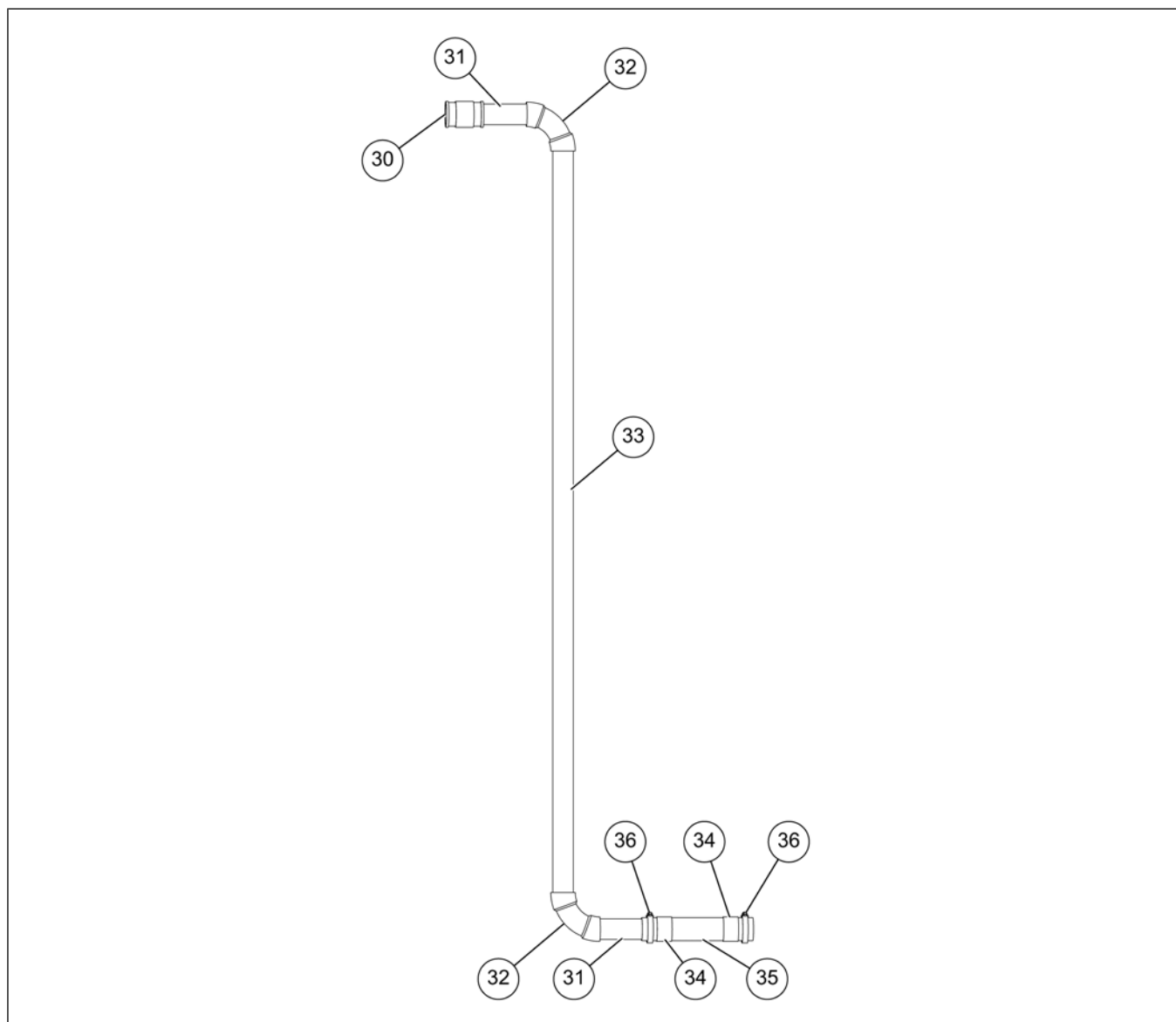
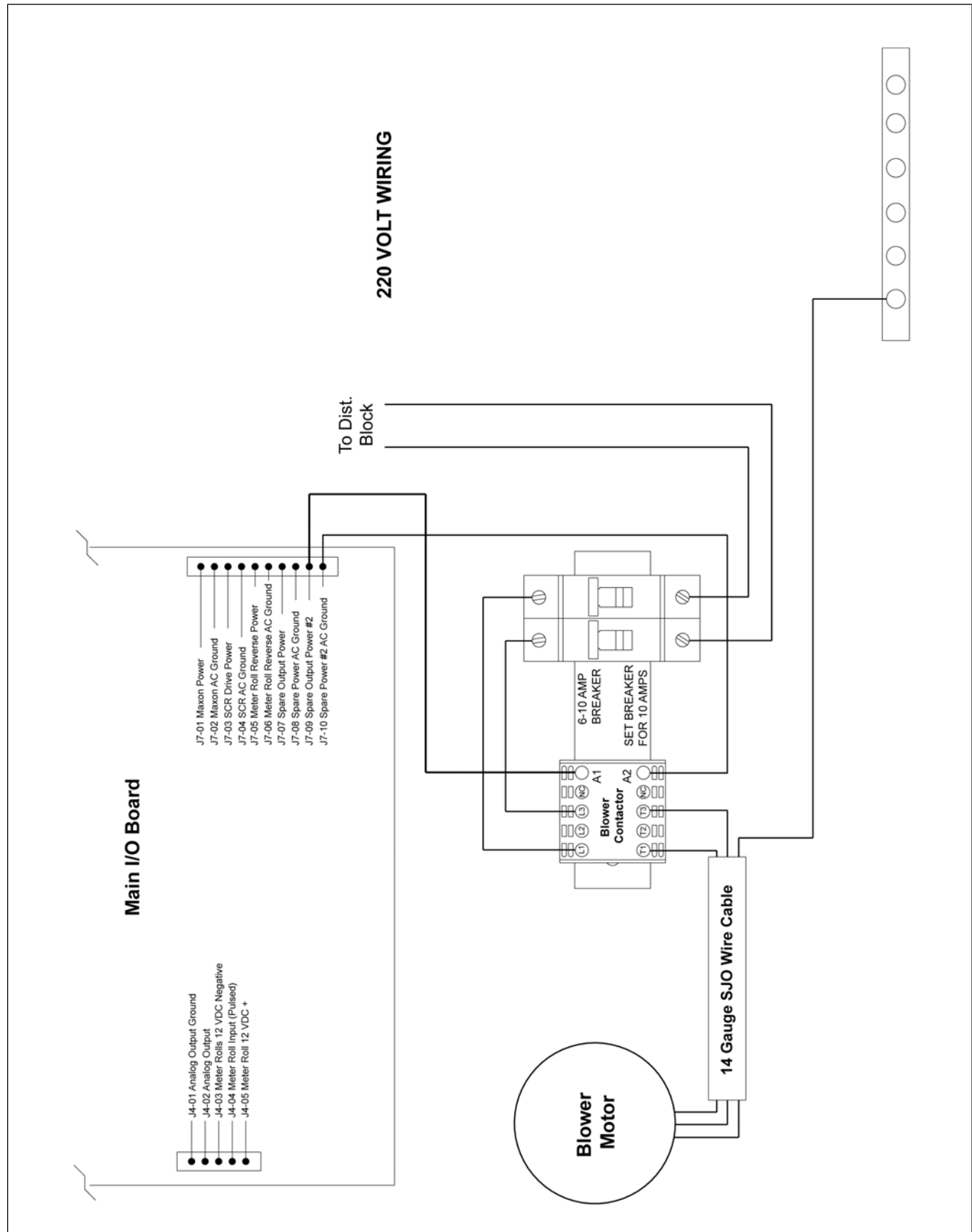


Table 7-2 Moisture sampler hose parts list (D04-1023)

Ref #	Part #	Description	Qty.
30	D03-1205	Fitting, flexible pipe coupler, 1-1/2 x 3-7/16 in. long	1
31	D01-2972	Pipe, black ABS 1-1/2 x 6-1/4 in.	2
32	D03-1203	Fitting, flexible pipe elbow, 1-1/2 in. 90°	2
33	D01-2971	Pipe, black ABS 1-1/2 x 70 in.	1
34	D03-1192	Coupler, outdoor bend and stay duct hose for 2 in. I.D., 2-1/4 in. O.D.	2
35	D01-2973	Hose, flexible, 2 x 12 in. (Extended length)	1
36	AP-0583	Hose clamp, SAE 36 - stainless steel 1-13/16 in. – 2-3/4 in.	2

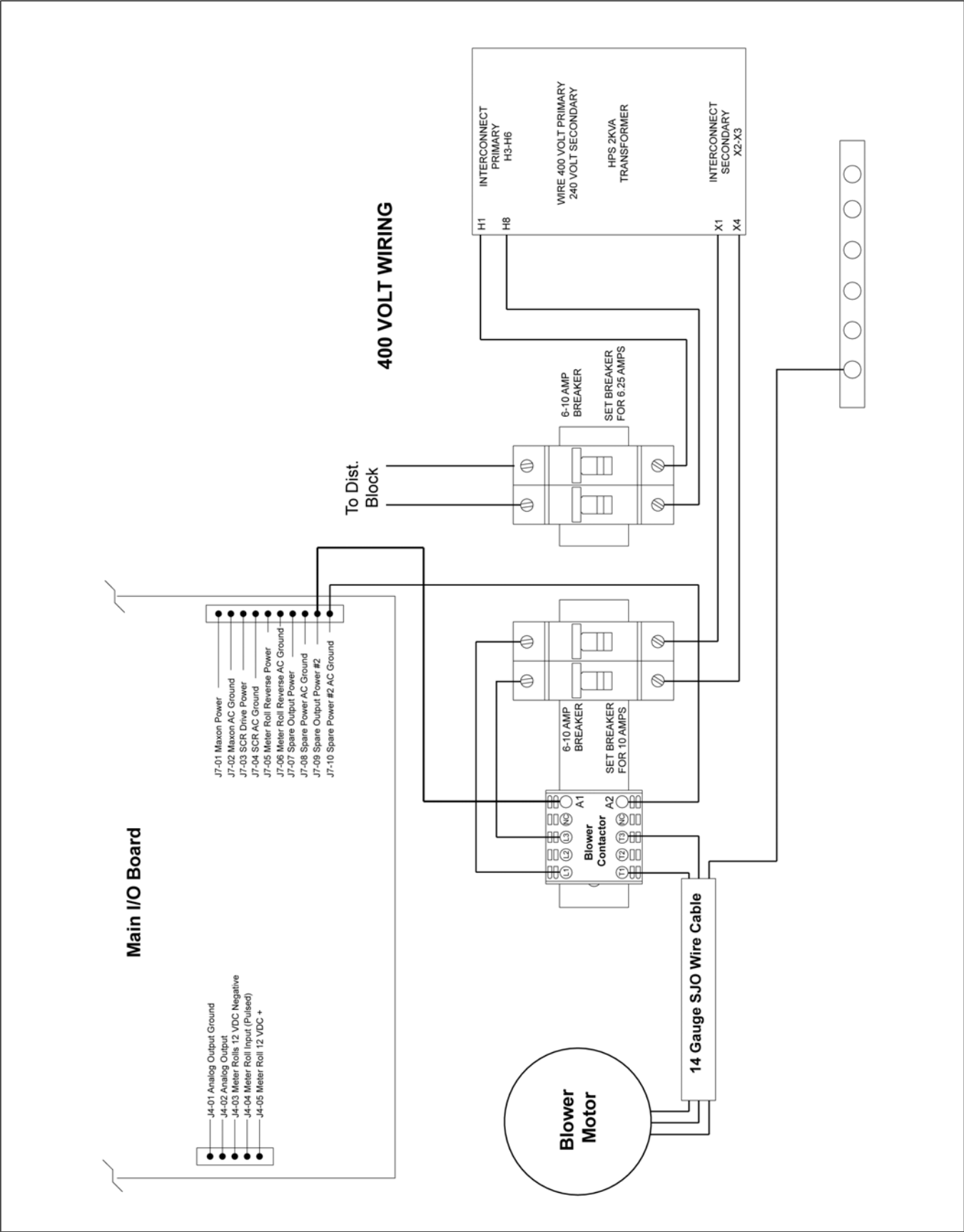
220V Moisture Sampler Blower Wiring Diagram

Figure 7-8 220V blower motor wiring diagram



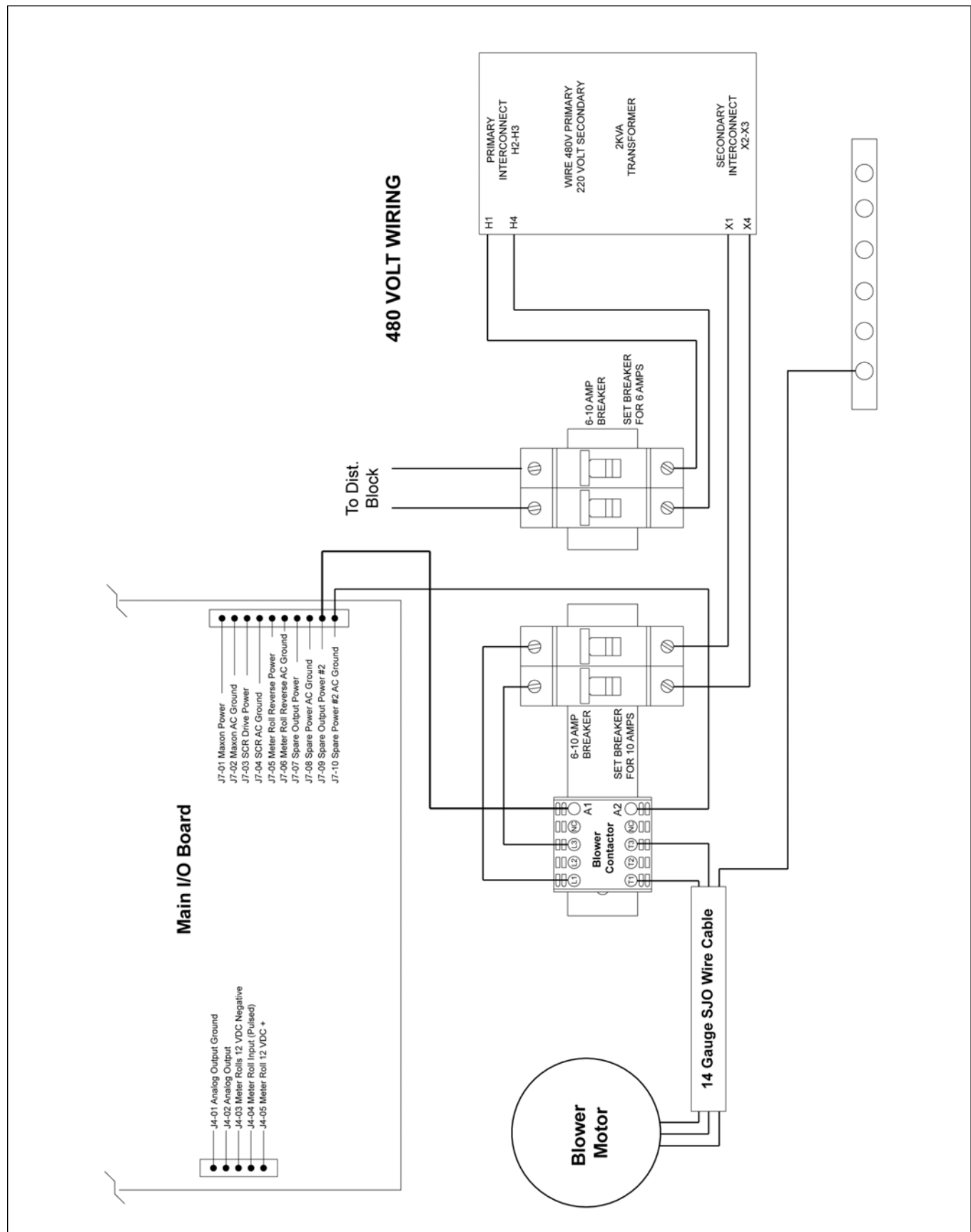
400V Moisture Sampler Blower Wiring Diagram

Figure 7-9 400V blower motor wiring diagram



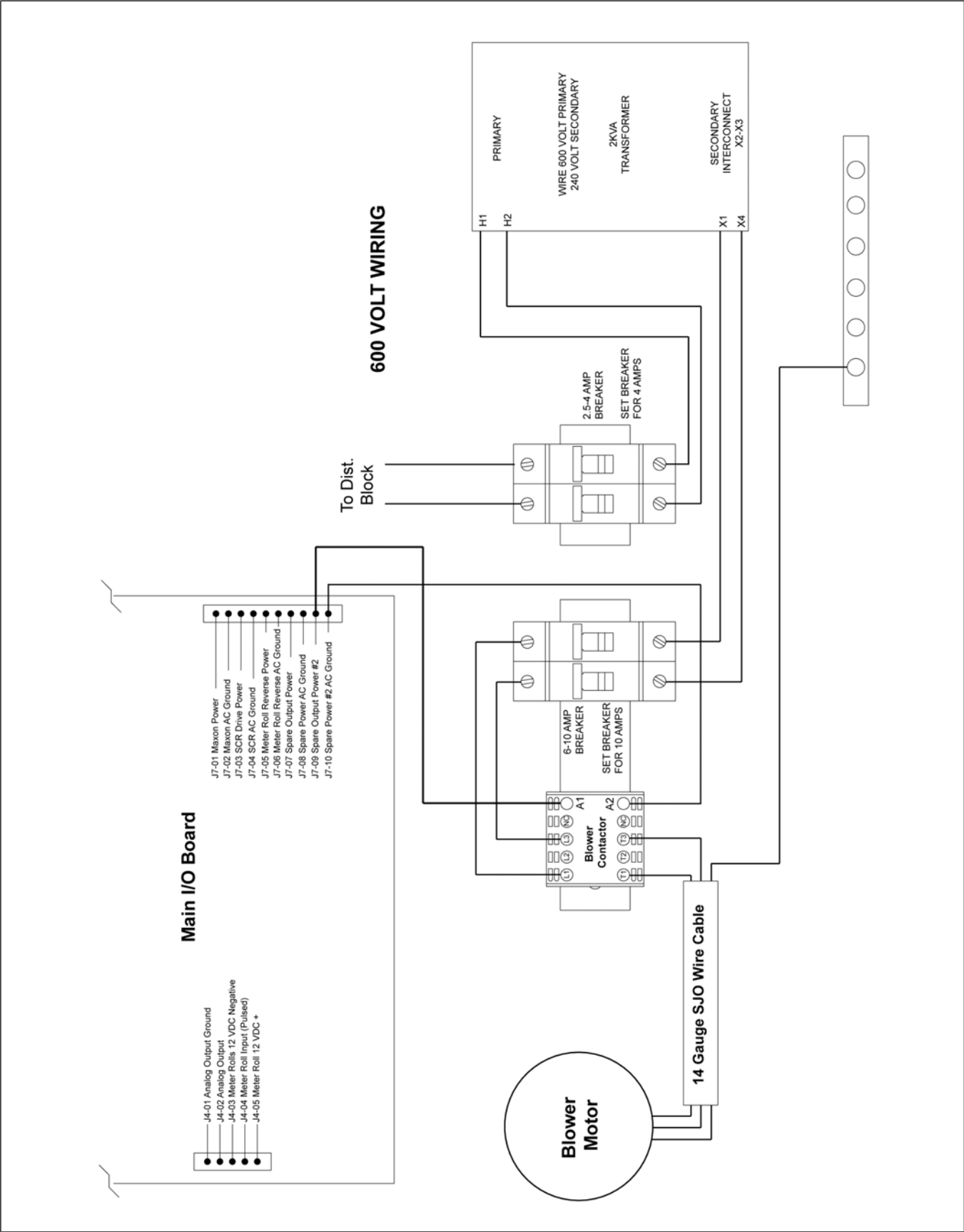
480V Moisture Sampler Blower Wiring Diagram

Figure 7-10 480V blower motor wiring diagram



600V Moisture Sampler Blower Wiring Diagram

Figure 7-11 600V blower motor wiring diagram



8 Power Supply

Topics Covered in this Chapter

- Guidelines for Supplying Adequate Power
- Installing the Machine-to-Earth Grounding Rod
- Guidelines for Powering Auxiliary Conveyors
- Specifications for the Electrical Load on a Quiet Dryer

Guidelines for Supplying Adequate Power

An adequate power supply and proper wiring are important factors for ensuring maximum performance and long life of the dryer.

- Ensure that electrical service is adequate to prevent low-voltage damage to motors and control circuits. Refer to [Specifications for the Electrical Load on a Quiet Dryer, page 57](#) for power supply requirements.
- Power supply for single-phase models must include a neutral wire.



WARNING

All dryers are equipped with a main electrical disconnect switch on the main control box. This switch turns off the main power to the dryer. Make sure to turn off the main electrical disconnect switch before inspecting or servicing the dryer.


- Advise the service representative of the local power supplier that an additional load will be placed on the line.
- Considering the total horsepower load, check the KVA rating of transformers.
- The voltage drop during a motor start must not exceed 14% of the normal voltage. The power supply wiring, main switch equipment, and transformers must provide adequate motor startup and operating voltage.
- Verify that the motor is within 8% of the normal voltage when it is operating at full speed.
- Check the electrical load information for HP ratings and the maximum amp loads.

Installing the Machine-to-Earth Grounding Rod

To help protect circuit boards, the variable frequency drive (VFD) and the ignition system if electrical short circuits occur, you must install a machine-to-earth grounding rod (3).

What You Should Know

The machine-to-earth grounding rod (3) that is located at the power pole does not provide adequate grounding for the dryer. The grounding rod that you install must be in accordance with local requirements.

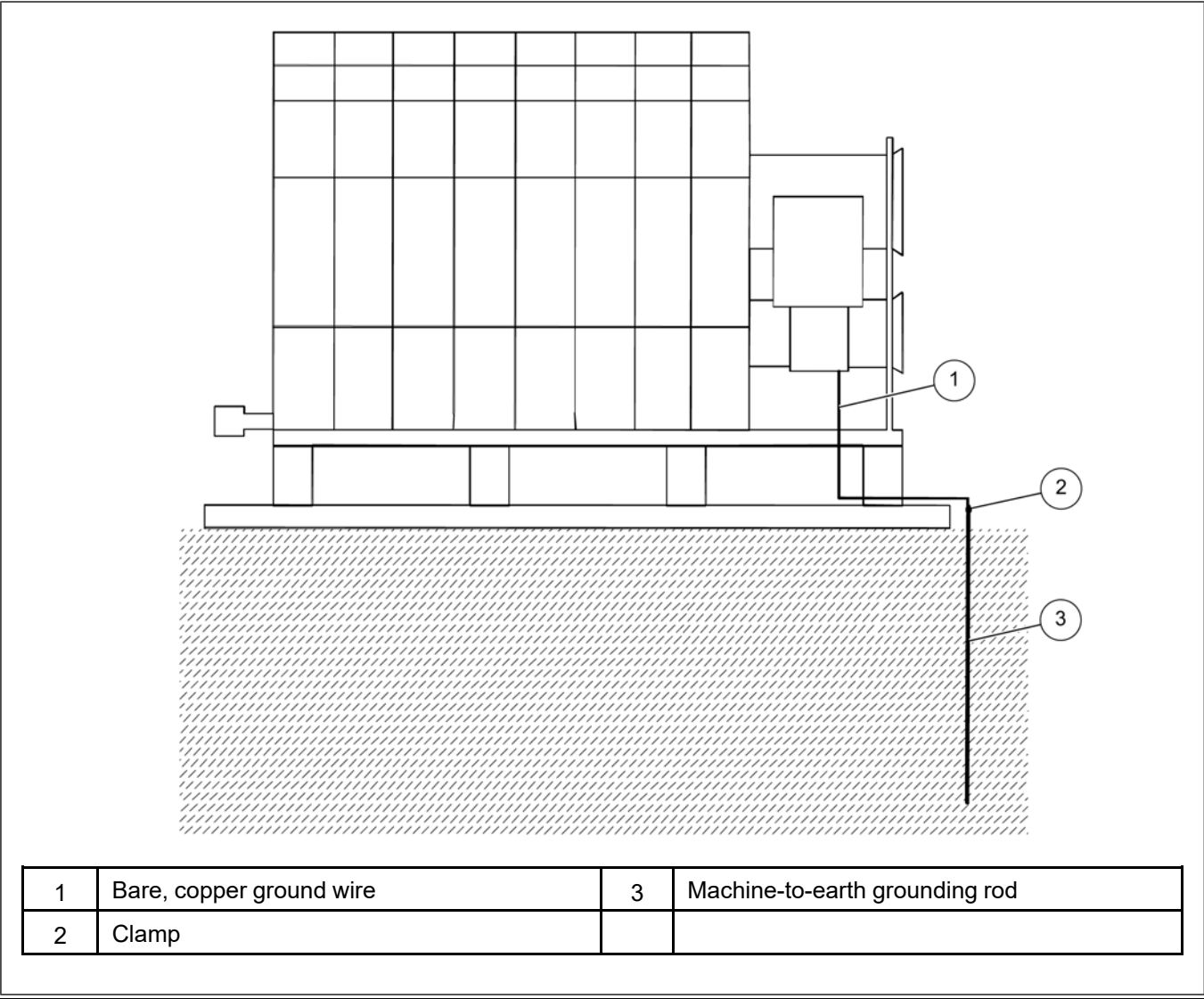


Do not install the machine-to-earth grounding rod into dry soil. The soil must be wet to ensure good contact with the surrounding soil, thereby making an appropriate ground.

1. Place the machine-to-earth grounding rod (3) within 8 ft. (2.4 m) of the dryer.
2. Dig a hole large enough to hold 2 gallons (7.6 liters) of water.
3. Fill the hole with water and insert the rod through the water and into the ground.
4. Move the rod up and down, working the water into the ground.
The rod is fully inserted into the ground and an appropriate contact with the surrounding soil is assured.
5. Using an appropriate clamp (2), connect the bare, copper ground wire (1) to the grounding rod (3).
6. Connect the ground wire (1) to the control panel using the ground lug that is provided in the control box.

NOTE: Use a minimum grade of number six solid, bare, copper wire. The ground wire must not have any breaks or splices. Do not use insulated wire for grounding applications.

Figure 8-1 Grounding rod installation



Guidelines for Powering Auxiliary Conveyors

Before you can operate the auxiliary conveyors, you must ensure that adequate power is available.

- The auxiliary load and auxiliary unload augers or conveyors can be wired directly to the dryer.
- If an auxiliary motor is larger than recommended, it must be powered from a source outside the dryer and must use a separate contactor and overload protection device for each motor. However, you can operate the auxiliaries through the control panel.
- Refer to [Specifications for the Electrical Load on a Quiet Dryer, page 57](#) for the maximum horsepower and amps that can be wired to the dryer.

Specifications for the Electrical Load on a Quiet Dryer

These charts provide information for you to ensure that the grain dryer and the auxiliary equipment are supplied with adequate power.

It is recommended that you contact the local power company and have a representative verify the installation to make sure that the wiring is compatible with their system and adequate power is supplied to the unit. The only equipment connected to the recommended service amps must be the grain dryer. You must adhere to all national and local electrical regulations. (Refer to the National Electrical Code Standard handbook created by the National Fire Protection Association). A qualified electrician must make all electrical wiring installations.

Table 8-1 Specifications for the electrical load on a quiet dryer

Dryer model	Voltage	Motor	HP	Full Load Amps	Maximum amps with auxiliaries	Minimum amps	Recommended service in amps	Branch breaker in amps
Q112 Q270	1 PH 230V	Load auger	2	14	178	82	300	60
		Unload auger	1.5	8				60
		Fan	15	60				100
		(2) Auxiliary	(2) 7.5	62				*
	3 PH 220V	Load auger	2	6.2	113	49	175	50
		Unload auger	1.5	5				50
		Fan	15	37.8				60
		(2) Auxiliary	(2) 7.5	40				*
	3 PH 440V	Load auger	2	3.1	61.4	24.5	150	60
		Unload auger	1.5	2.5				60
		Fan	15	18.9				60
		(2) Auxiliary	(2) 7.5	20				*
Q114 Q320	1 PH 230V	Load auger	5	26	213	112	350	100
		Unload auger	5	26				100
		Fan	15	60				100
		(2) Auxiliary	(2) 7.5	62				*
	3 PH 220V	Load auger	5	13.2	145	65.4	200	60
		Unload auger	5	13.2				60
		Fan	15	39				90
		(2) Auxiliary	(2) 10	52				*
	3 PH 440V	Load auger	5	6.6	78	32.7	150	60
		Unload auger	5	6.6				60
		Fan	15	19.5				60
		(2) Auxiliary	(2) 10	26				*

Chapter 8: Power Supply

Table 8-1 Specifications for the electrical load on a quiet dryer (cont'd.)

Dryer model	Voltage	Motor	HP	Full Load Amps	Maximum amps with auxiliaries	Minimum amps	Recommended service in amps	Branch breaker in amps
Q116 Q370	1 PH 230V	Load auger	5	26	213	112	350	100
		Unload auger	5	26				100
		Fan	15	60				100
		(2) Auxiliary	(2) 7.5	62				*
	3 PH 220V	Load auger	5	13.2	145	65.4	200	60
		Unload auger	5	13.2				60
		Fan	15	39				90
		(2) Auxiliary	(2) 10	52				*
	3 PH 440V	Load auger	5	6.6	78	32.7	150	60
		Unload auger	5	6.6				60
		Fan	15	19.5				60
		(2) Auxiliary	(2) 10	26				*
Q118 Q400	3 PH 220V	Load auger	5	13.2	168	86.4	250	60
		Unload auger	5	13.2				60
		Fan	25	60				90
		(2) Auxiliary	(2) 10	52				*
	3 PH 440V	Load auger	5	6.6	89	43.2	150	60
		Unload auger	5	6.6				60
		Fan	25	30				60
		(2) Auxiliary	(2) 10	26				*
Q120 Q460	3 PH 220V	Load auger	7.5	20	215	100	300	90
		Unload auger	7.5	20				90
		Fan	30	76				90
		(2) Auxiliary	(2) 15	78				*
	3 PH 440V	Load auger	7.5	10	121	58	200	60
		Unload auger	7.5	10				60
		Fan	30	38				60
		(2) Auxiliary	(2) 15	39				*
Q122 Q511	3 PH 220V	Load auger	7.5	20	233	116	300	90
		Unload auger	7.5	20				90
		Fan	30	76				90
		(2) Auxiliary	(2) 15	78				*
	3 PH 440V	Load auger	7.5	10	121	58	200	60
		Unload auger	7.5	10				60
		Fan	30	38				60
		(2) Auxiliary	(2) 15	39				*
Q126 Q601	3 PH 220V	Load auger	10	26	271	148	400	90
		Unload auger	10	26				90
		Fan	40	96				125
		(2) Auxiliary	(2) 15	78				*
	3 PH 440V	Load auger	10	13	140	74	250	60
		Unload auger	10	13				60
		Fan	40	48				90
		(2) Auxiliary	(2) 15	39				*

9 Fuel Supply

Topics Covered in this Chapter

- Guidelines for Connecting a Liquid Propane Supply Tank to a Dryer
- Guidelines for Connecting Natural Gas to a Dryer

Guidelines for Connecting a Liquid Propane Supply Tank to a Dryer

When initially installing the dryer, you must connect a fuel source before you can operate the dryer. Liquid propane (LP) is one of the fuel sources you can use to fuel your dryer.

The dryers have internal vaporizers and are designed to operate on liquid draw from the supply tank. Consult your liquid propane gas dealer for proper fittings, connection hose, and safety controls that are required to meet local standards and conform with the National Fire Protection Association standards. The piping train on the dryer includes the strainer, pressure relief valve, electronic safety shutoff valve (on some models), and a pressure regulator between the vaporizer and the burner.



When long gas lines are installed between the liquid propane fuel tank and the dryer, the fuel can vaporize in the fuel lines causing the vaporizer to over heat.



Do not use tanks that have previously been used for ammonia or fertilizer solutions. These substances are extremely corrosive and can damage fuel supply and burner parts.

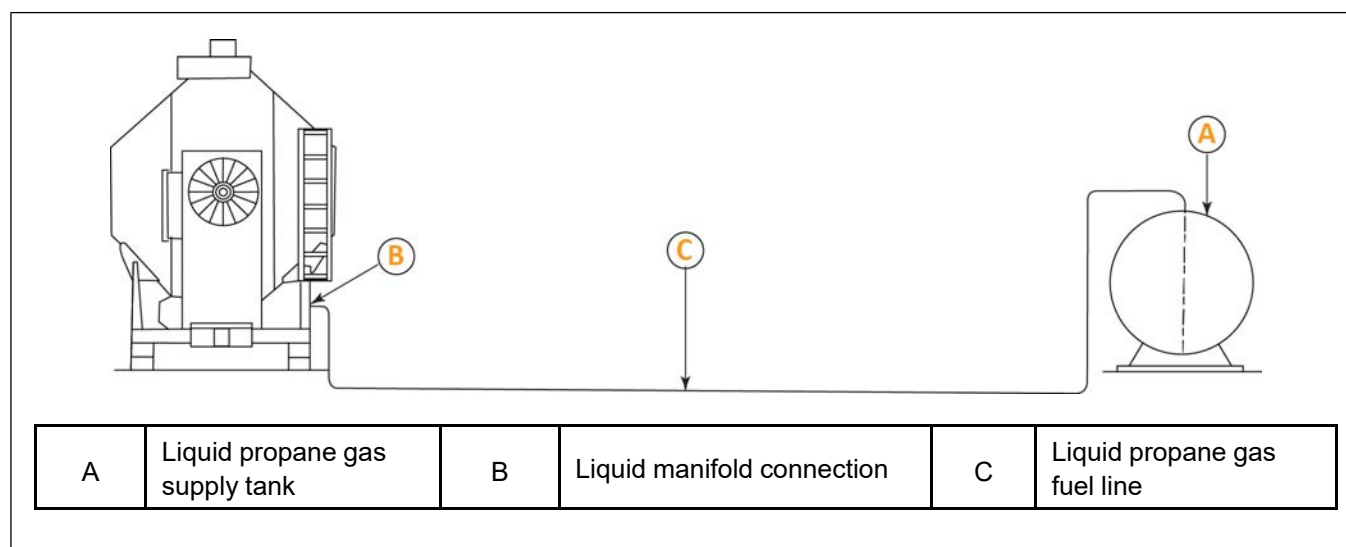


As a result of liquid draw from the supply tank, any water or oil present in the tank can freeze in the pipe train or the controls and cause damage. To make sure that the tank is free of moisture, it can be purged with methanol. Avoid tanks containing an accumulation of oil or heavy hydrocarbon, resulting from extensive use on a vapor withdrawal system.

Guidelines for connecting the liquid propane fuel tank to the dryer:

- Verify that the tank is 1000 gallons or larger and does not have a regulator mounted to it.
- Connect a flexible hose that is designed for liquid propane gas to supply tank. See [Liquid Propane Recommendations for Quiet Dryer, page 60](#) to determine the correct size of fuel line and heater orifice to use for your installation.
- Consult your liquid propane gas dealer for correct fittings, connection hoses, and safety controls that are required to meet all local and national code standards.
- Connect a liquid propane flexible hose to the manifold on the dryer.
- Open the liquid propane shutoff valves slowly to prevent accidental closing of the excess flow valves.

Figure 9-1 Grain dryer connected to a liquid propane tank



Liquid Propane Recommendations for Quiet Dryer

The liquid propane (LP) fuel line size and heater orifice size are determined by the dryer model heat capacity and fuel flow rate. Use the specifications chart that follows to select the appropriate equipment for your dryer.

Table 9-1 Specifications for liquid propane (LP)

Dryer Model #		Maximum Heat Capacity		Maximum Fuel Flow		Fuel Line Size*	
GSI	FFI	BTU Per Hour	Kilowatt Hours	Gallons Per Hour (gph)	Liters Per Hour (l/hour)	Inches	Millimeters
Q112	Q270	4,500,000	1319	49	185.5	0.50	13
Q114	Q320	5,750,000	1685	63	238.5	0.50	13
Q116	Q370	5,750,000	1685	63	238.5	0.50	13
Q118	Q400	6,750,000	1978	74	280.1	0.50	13
Q120	Q460	7,500,000	2198	82	310.4	0.50	13
Q122	Q511	8,750,000	2564	96	363.4	0.75	19
Q126	Q601	10,250,000	3004	112	424	0.75	19

* Minimum line size for a 100 ft (30.5 m) distance.

Guidelines for Connecting Natural Gas to a Dryer

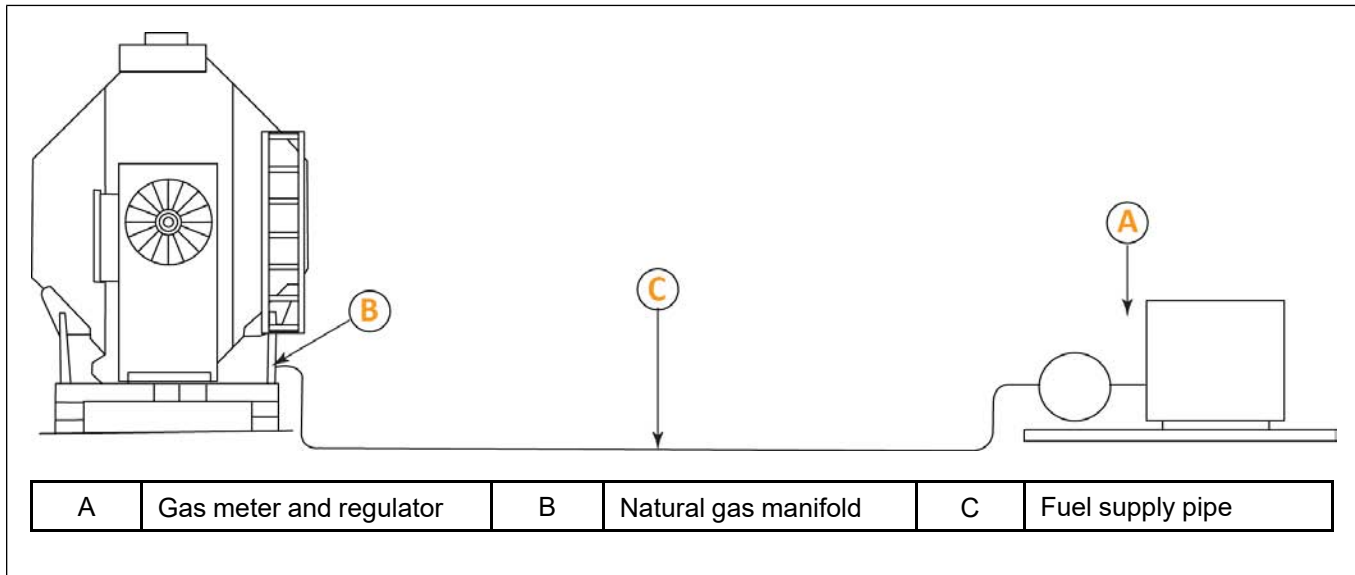
When initially installing the dryer, you must connect a fuel source before you can operate the dryer. Natural gas (NG) is one possible fuel choice.

- Operate the dryer on natural gas with a heat value of approximately 1000 BTU (880 kWper cubic foot).

NOTE: *The dryer is equipped with a natural gas supply pipe system connected to the heater solenoid valves.*

- You must provide a regulated pressure of 15 PSI at the connection to the dryer with sufficient gas available to maintain this operating pressure.

Figure 9-2 Grain dryer connected to a natural gas supply tank



Natural Gas Recommendations for Quiet Dryers

The fuel line size and heater orifice size are determined by the dryer model heat capacity and fuel flow rate. Use the specifications chart that follows to select the appropriate equipment for your dryer.

Table 9-2 Specifications for natural gas (NG)

Dryer Model #		Maximum Heat Capacity		Maximum Fuel Flow		Fuel Line Size*	
GSI	FFI	BTU Per Hour	Kilowatt Hours	Cubic Feet Per Hour (ft3/h)	Cubic Meters Per Hour (m3/h)	Inches	Millimeters
Q112	Q270	4,500,000	1,319	4,500	127	1.5	38
Q114	Q320	5,750,000	1,685	5,750	163	1.5	38
Q116	Q370	5,750,000	1,685	5,750	163	1.5	38
Q118	Q400	6,750,000	1,978	6,750	191	2	51
Q120	Q460	7,500,000	2,198	7,500	212	2	51
Q122	Q511	8,750,000	2,564	8,750	248	2	51
Q126	Q601	10,250,000	3,004	10,250	290	2	51

* Minimum line size for a 100 ft (30.5 m) distance.

NOTES

10 Maintenance

Topics Covered in this Chapter

- Lubrication Guide
- Belt Tensioning

Lubrication Guide

The motor bearings use a No. 2 consistency lithium complex base grease.

The following lubrication table is a general guide for normal operating conditions. However, if the bearing is subjected to excessive operating conditions, a more frequent schedule may be needed.

Table 10-1 *Suggested lubrication period in weeks*

Hours run per day	751 to 1500 RPM
8	7
16	4
24	2

Storage or special shutdown

If the dryer will be idle for some time, before shutting down, add grease to the bearing until the grease purges from the seals. This will ensure protection of the bearing, particularly when exposed to the severe environmental conditions. After storage or an idle period, add fresh grease to the bearing before operating.

Belt Tensioning

If any of the following conditions exist, adjust the tension on the belts until they are alleviated:

- The belts squeal as the motor is turned ON.
- The belts do not have a slight bow on the slack side when they are operating at full loads. A properly tensioned belt will have a slight bow. The belts could be too loose or too tight.
- The sheave is excessively hot. To test, shut OFF power sources and lock out controls. Hold your finger in the sheave groove, it should be warm but not too hot to touch. If it is too hot, the belt tension should be loosened.

NOTES

11 Dryer Specifications

Topics Covered in this Chapter

- Specifications for GSI Quiet Dryers
- Transport and Installation Dimensions for GSI Quiet Dryers
- Specifications for FFI Quiet Dryers
- Transport and Installation Dimensions for FFI Quiet Dryers

Specifications for GSI Quiet Dryers

The specifications that follow list the detail information for each dryer model. You can reference these charts for items such as capacities, electrical loads, fan sizes, and auger dimensions.

Table 11-1 Specifications for the GSI quiet portable dryers

Model #	Q112	Q114	Q116	Q118	Q120	Q122	Q126
Total Holding Capacity (Bushels)	327	381	436	490	544	599	708
Grain Column Holding Capacity (Bushels)	282	329	376	423	470	517	611
Fan Size	49 in. (125 cm) 15 HP	49 in. (125 cm) 15 HP	49 in. (125 cm) 15 HP	54 in. (137 cm) 25 HP	54 in. (137 cm) 30 HP	54 in. (137 cm) 30 HP	54 in. (137 cm) 40 HP
Heater Diameter	36 in.	40 in.	40 in.	42 in.	42 in.	42 in.	42 in.
Top Auger 8 in. (20 cm) Diameter	2 HP	3 HP	5 HP	5 HP	7.5 HP	7.5 HP	10 HP
Capacity (BPH)	2900	3800	3800	3800	3800	3800	3800
Bottom Auger 8 in. (20 cm) Diameter	1.5 HP	3 HP	5 HP	5 HP	7.5 HP	7.5 HP	10 HP
Meter Roll Drive	VFD, 1 HP	VFD, 1 HP	VFD, 1 HP	VFD, 1 HP	VFD, 1 HP	VFD, 1 HP	VFD, 1 HP
Capacity - Maximum Rate ¹ (BPH)	1680	1960	2240	2520	2800	3080	3080
¹ Actual discharge rate is controlled by meter roll speed adjustment, at 5% to 85% of maximum rate.							

Transport and Installation Dimensions for GSI Quiet Dryers

The dryer dimensions that follow help you determine the area that is needed for transporting and installing the dryer.

Figure 11-1 *Diagram of dryer dimensions*

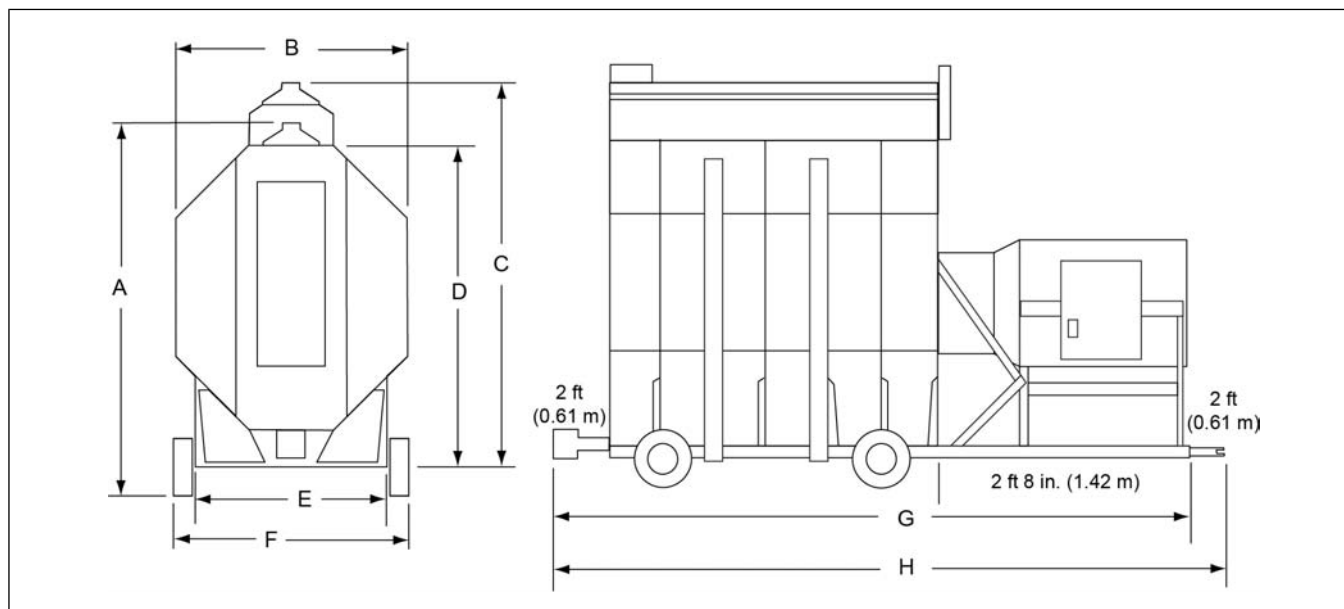


Table 11-2 *GSI quiet portable dryer transport and installation dimensions*

Dryer Basket	A	B	C	E	F	G	H
	Transport Height	Installed Width	Installed Height Wet Bin	Frame Width	Transport Width	Installed Length	Transport Length
Q112 (12 ft) (3.66 m)	13 ft 5 in. (409 cm)	8 ft (244 cm)	14 ft 6 in. (442 cm)	6 ft 5 in. (196 cm)	8 ft (244 cm)	22 ft 10 in. (696 cm)	24 ft 10 in. (757 cm)
Q114 (14 ft) (4.28 m)	13 ft 5 in. (409 cm)	8 ft (244 cm)	14 ft 6 in. (442 cm)	6 ft 5 in. (196 cm)	8 ft (244 cm)	24 ft 10 in. (757 cm)	26 ft 10 in. (818 cm)
Q116 (16 ft) (4.88 m)	13 ft 5 in. (409 cm)	8 ft (244 cm)	14 ft 6 in. (442 cm)	6 ft 5 in. (196 cm)	8 ft (244 cm)	26 ft 10 in. (818 cm)	28 ft 10 in. (879 cm)
Q118 (18 ft) (5.49 m)	13 ft 5 in. (409 cm)	8 ft (244 cm)	14 ft 6 in. (442 cm)	6 ft 5 in. (196 cm)	8 ft (244 cm)	29 ft 10 in. (909 cm)	31 ft 10 in. (970 cm)
Q120 (20 ft) (6.10 m)	13 ft 5 in. (409 cm)	8 ft (244 cm)	14 ft 6 in. (442 cm)	6 ft 5 in. (196 cm)	8 ft (244 cm)	31 ft 10 in. (970 cm)	33 ft 10 in. (1031 cm)
Q122 (22 ft) (6.71 m)	13 ft 5 in. (409 cm)	8 ft (244 cm)	14 ft 6 in. (442 cm)	6 ft 5 in. (196 cm)	8 ft (244 cm)	33 ft 10 in. (1031 cm)	35 ft 10 in. (1092 cm)
Q126 (26ft) (7.92m)	13 ft 5 in. (409 cm)	8 ft (244 cm)	14 ft 6 in. (442 cm)	6 ft 5 in. (196 cm)	8 ft (244 cm)	37 ft 10 in. (1153 cm)	39 ft 10 in. (1214 cm)

Specifications for FFI Quiet Dryers

The specifications that follow list the detail information for each dryer model. You can reference these charts for items such as capacities, electrical loads, fan sizes, and auger dimensions.

Table 11-3 Specifications for the FFI quiet portable dryers

Model #	Q207 12 ft (3.66 m)	Q320 14 ft (4.28 m)	Q370 16 ft (4.88 m)	Q400 18 ft (5.49 m)	Q460 20 ft (6.10 m)	Q511 22 ft (6.71 m)	Q601 26 ft (7.92 m)
Total Holding Capacity (Bushels)	327	381	436	490	544	599	708
Grain Column Holding Capacity (Bushels)	282	329	376	423	470	517	611
Fans	49 in. (125 cm) 15 HP	49 in. (125 cm) 15 HP	49 in. (125 cm) 15 HP	54 in. (137 cm) 25 HP	54 in. (137 cm) 30 HP	54 in. (137 cm) 30 HP	54 in. (137 cm) 40 HP
Heater Diameter	36 in.	40 in.	40 in.	42 in.	42 in.	42 in.	42 in.
Top Auger 8 in. (20 cm) Diameter	2 HP	3 HP	5 HP	5 HP	7.5 HP	7.5 HP	10 HP
Capacity (BPH)	2900	3800	3800	3800	3800	3800	3800
Bottom Auger 8 in. (20 cm) Diameter	1.5 HP	3 HP	5 HP	5 HP	7.5 HP	7.5 HP	10 HP
Meter Roll Drive	VFD, 1 HP	VFD, 1 HP	VFD, 1 HP	VFD, 1 HP	VFD, 1 HP	VFD, 1 HP	VFD, 1 HP
Capacity - Maximum Rate ¹ (BPH)	1680	1960	2240	2520	2800	3080	3080
¹ Actual discharge rate is controlled by meter roll speed adjustment, at 5% to 85% of maximum rate.							

Transport and Installation Dimensions for FFI Quiet Dryers

The dryer dimensions that follow help you determine the area that is needed for transporting and installing the dryer.

Figure 11-2 *Diagram of dryer dimensions*

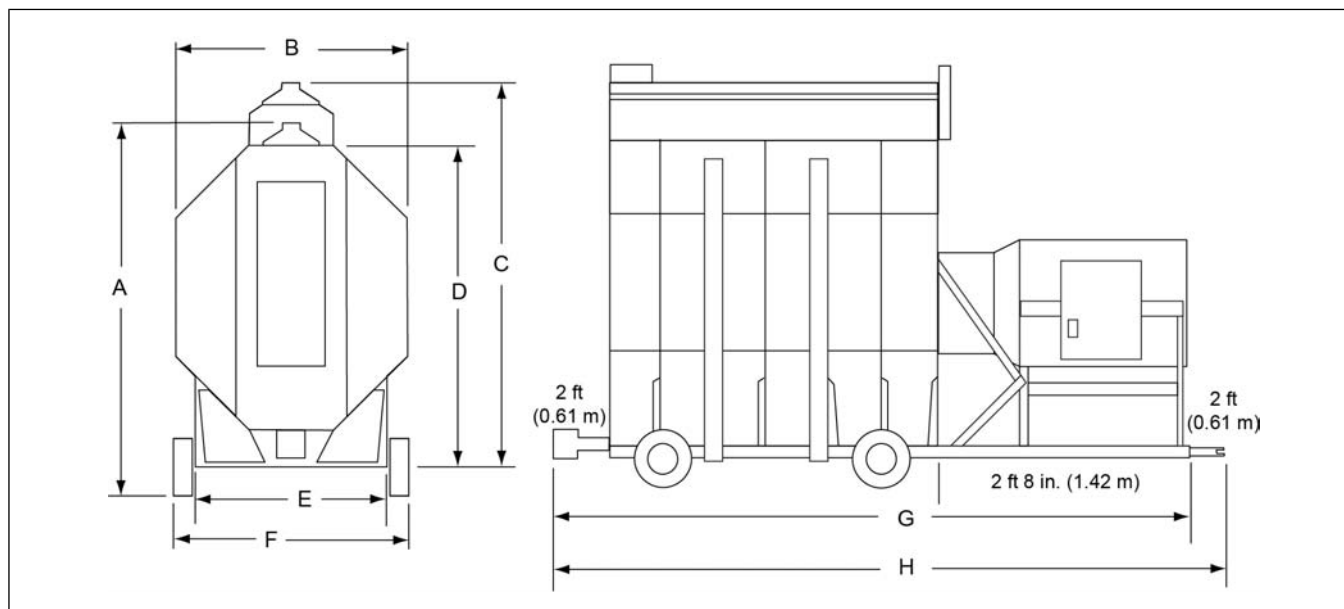


Table 11-4 *FFI quiet portable dryer transport and installation dimensions*

Dryer Basket	A	B	C	E	F	G	H
	Transport Height	Installed Width	Installed Height Wet Bin	Frame Width	Transport Width	Installed Length	Transport Length
Q270 (12 ft) (3.66 m)	13 ft 5 in. (409 cm)	8 ft (244 cm)	14 ft 6 in. (442 cm)	6 ft 5 in. (196 cm)	8 ft (244 cm)	22 ft 10 in. (696 cm)	24 ft 10 in. (757 cm)
Q320 (14 ft) (4.28 m)	13 ft 5 in. (409 cm)	8 ft (244 cm)	14 ft 6 in. (442 cm)	6 ft 5 in. (196 cm)	8 ft (244 cm)	24 ft 10 in. (757 cm)	26 ft 10 in. (818 cm)
Q370 (16 ft) (4.88 m)	13 ft 5 in. (409 cm)	8 ft (244 cm)	14 ft 6 in. (442 cm)	6 ft 5 in. (196 cm)	8 ft (244 cm)	26 ft 10 in. (818 cm)	28 ft 10 in. (879 cm)
Q400 (18 ft) (5.49 m)	13 ft 5 in. (409 cm)	8 ft (244 cm)	14 ft 6 in. (442 cm)	6 ft 5 in. (196 cm)	8 ft (244 cm)	29 ft 10 in. (909 cm)	31 ft 10 in. (970 cm)
Q460 (20 ft) (6.10 m)	13 ft 5 in. (409 cm)	8 ft (244 cm)	14 ft 6 in. (442 cm)	6 ft 5 in. (196 cm)	8 ft (244 cm)	31 ft 10 in. (970 cm)	33 ft 10 in. (1031 cm)
Q511 (22 ft) (6.71 m)	13 ft 5 in. (409 cm)	8 ft (244 cm)	14 ft 6 in. (442 cm)	6 ft 5 in. (196 cm)	8 ft (244 cm)	33 ft 10 in. (1031 cm)	35 ft 10 in. (1092 cm)
Q601 (26ft) (7.92m)	13 ft 5 in. (409 cm)	8 ft (244 cm)	14 ft 6 in. (442 cm)	6 ft 5 in. (196 cm)	8 ft (244 cm)	37 ft 10 in. (1153 cm)	39 ft 10 in. (1214 cm)

Limited Warranty — N.A. Grain Products

The GSI Group, LLC. ("GSI") warrants products which it manufactures, to be free of defects in materials and workmanship under normal usage and conditions for a period of 12 months from the date of shipment (or, if shipped by vessel, 14 months from the date of arrival at the port of discharge). If, in GSI's sole judgment, a product is found to have a defect in materials and/or workmanship, GSI will, at its own option and expense, repair or replace the product or refund the purchase price. This Limited Warranty is subject to extension and other terms as set forth below.

Warranty Enhancements: The warranty period for the following products is enhanced as shown below and is in lieu of (and not in addition to) the above stated warranty period. (Warranty Period is from date of shipment.)

	Product	Warranty Period
Storage	Grain Bin Structural Design	5 Years
	• Sidewall, roof, doors, platforms and walkarounds • Flooring (when installed using GSI specified floor support system for that floor) • Hopper tanks (BFT, GHT, NCHT, and FCHT)	
Conditioning	Dryer Structural Design – (Tower, Portable and TopDry) • Includes (frame, portable dryer screens, ladders, access doors and platforms)	5 Years
	All other Dryer parts including: • Electrical (controls, sensors, switches and internal wiring)	2 Years
	All Non-PTO Driven Centrifugal and Axial Fans	3 Years
	Bullseye Controllers	2 Years
Material Handling	Bucket Elevators Structural Design	5 Years
	Towers Structural Design	5 Years
	Catwalks Structural Design	5 Years
	Accessories (stairs, ladders and platforms) Structural Design	5 Years

Conditions and Limitations:

THERE ARE NO WARRANTIES THAT EXTEND BEYOND THE LIMITED WARRANTY DESCRIPTION SET FORTH HEREIN; SPECIFICALLY, GSI DISCLAIMS ANY AND ALL OTHER WARRANTIES OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE IN CONNECTION WITH: (I) ANY PRODUCT MANUFACTURED OR SOLD BY GSI, OR (II) ANY ADVICE, INSTRUCTION, RECOMMENDATION OR SUGGESTION PROVIDED BY AN AGENT, REPRESENTATIVE OR EMPLOYEE OF GSI REGARDING OR RELATED TO THE CONFIGURATION, INSTALLATION, LAYOUT, SUITABILITY FOR A PARTICULAR PURPOSE, OR DESIGN OF SUCH PRODUCTS.

The sole and exclusive remedy for any claimant is set forth in this Limited Warranty and shall not exceed the amount paid for the product purchased. This Warranty only covers the value of the warranted parts and equipment, and does not cover labor charges for removing or installing defective parts, shipping charges with respect to such parts, any applicable sales or other taxes, or any other charges or expenses not specified in this Warranty. GSI shall not be liable for any other direct, indirect, incidental or consequential damages, including, without limitation, loss of anticipated profits or benefits. Expenses incurred by or on behalf of a claimant without prior written authorization from the GSI warranty department shall not be reimbursed. This warranty is not transferable and applies only to the original end-user. GSI shall have no obligation or responsibility for any representations or warranties made by or on behalf of any dealer, agent or distributor. Prior to installation, the end-user bears all responsibility to comply with federal, state and local codes which apply to the location and installation of the products.

This Limited Warranty extends solely to products sold by GSI and does not cover any parts, components or materials used in conjunction with the product, that are not sold by GSI. GSI assumes no responsibility for claims resulting from construction defects, unauthorized modifications, corrosion or other cosmetic issues caused by storage, application or environmental conditions. Modifications to products not specifically delineated in the manual accompanying the product at initial sale will void all warranties. This Limited Warranty shall not extend to products or parts which have been damaged by negligent use, misuse, alteration, accident or which have been improperly/inadequately maintained.

Notice Procedure:

In order to make a valid warranty claim a written notice of the claim must be submitted, using the RMA form, within 60 days of discovery of a warrantable nonconformance. The RMA form is found on the OneGSI portal.

Service Parts:

GSI warrants, subject to all other conditions described in this Warranty, Service Parts which it manufactures for a period of 12 months from the date of purchase unless specified in Enhancements above.

(Limited Warranty - N.A. Grain Products_ revised 01 October 2020)

This equipment shall be installed in accordance with the current installation codes and applicable regulations which should be carefully followed in all cases. Authorities having jurisdiction should be consulted before installations are made.



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