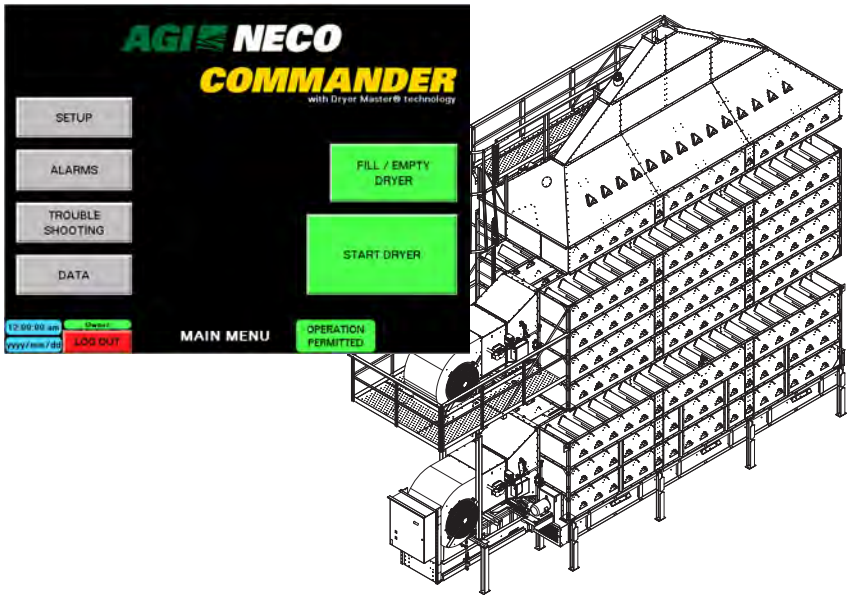
Continuous-Flow Grain Dryer

COMMANDER Control Assembly Manual

This manual applies to following models:

D1660, D1670, D1680, D1690, D16106, D16120, D16140, D16160
D24108, D24150, D24180, D24210, D24240, D24260, D24330, D24380
D32260, D32340, D32440, D32500



INSTALLATION AND WIRING MUST BE IN ACCORDANCE WITH CEC, NEC, AND LOCAL ELECTRICAL CODES

Read this manual before using product. Failure to follow instructions and safety precautions can result in serious injury, death, or property damage. Keep manual for future reference.

Part Number: 7713397 R5
Revised: June 2024
Original Instructions

⚠ WARNING:

FIRE OR EXPLOSION HAZARD

— Do not store or use gasoline or other flammable vapours and liquids in the vicinity of the crop dryer.

— WHAT TO DO 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.

— Installation and service must be performed by a qualified installer, service agency or the gas supplier.

⚠ WARNING:

FIRE OR EXPLOSION HAZARD

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.

New in this Manual

The following changes have been made in this revision of the manual:

Description
Added new catwalk sections
Added Pre-cleaner assembly

CONTENTS

1. Safety

1.1. Safety Alert Symbol and Signal Words

This safety alert symbol indicates important safety messages in this manual. When you see this symbol, be alert to the possibility of injury or death, carefully read the message that follows, and inform others.

Signal Words: Note the use of the signal words **DANGER**, **WARNING**, **CAUTION**, and **NOTICE** with the safety messages. The appropriate signal word for each message has been selected using the definitions below as a guideline.

DANGER Indicates an imminently hazardous situation that, if not avoided, will result in serious injury or death.

WARNING Indicates a hazardous situation that, if not avoided, could result in serious injury or death.

CAUTION Indicates a hazardous situation that, if not avoided, may result in minor or moderate injury.

NOTICE Indicates a potentially hazardous situation that, if not avoided, may result in property damage.

1.2. General Safety Information

Read and understand all safety instructions, safety decals, and manuals and follow them when assembling the equipment.

- Only experienced personnel who are familiar with this type of assembly and installation should perform this work. Untrained assemblers/installers expose themselves and bystanders to possible serious injury or death.

- Do not modify the grain dryer in any way or deviate from the instructions in this manual without written permission from the manufacturer. Unauthorized modification or methods may impair the function and/or safety. Any unauthorized modification will void the warranty.
- Follow a health and safety program for your worksite. Contact your local occupational health and safety organization for information.
- Contact your local representative or NECO if you need assistance or additional information.
- Always follow applicable local codes and regulations.

1.3. Grain Dryer Safety

⚠ WARNING

- Do not overheat grain or operate the dryer temperature too high. Keep the maximum plenum temperature not more than the maximum set point temperature.
- Be cautious of spontaneous combustion when working with oil seeds.
- Grain dust is a fire hazard. Keep all areas (including areas under the perforated floors) free from dust and fines.
- Clean out the dryer after using to remove grain dust, husks, and other materials.
- Screen grain before it goes into a bin to help prevent dust and trash buildup. Using a grain spreader will help distribute dust/fines.
- Ventilate, purge all contaminates, and allow burner, and drying areas to cool inside the heater, in the heater area and the dryer area before any persons enter these areas.
- Do not remove covers, touch, or service internal components during operation.
- Do not install or combine with products from other manufacturers. The design and safety features may not be compatible.
- Do not store or use gasoline or other flammable vapors and liquids in the vicinity of dryer.
- Do not use the dryer where a high concentration of grain dust or flammable liquids or vapors exist, such as milled grain dust.
- Use the dryer only with the gas types intended, connecting alternate fuel sources to the dryer can result in fires.
- Shut off and lock out or disconnect power and close valve at gas source before inspecting or servicing the heater, or when not in use.
- Keep away from fan impeller/blade; high suction can pull a person toward the inlet. Contact with an unguarded impeller/blade will cause severe injury.
- Keep the fan inlet screen in place at all times.
- Remove foreign material from the fan inlet before operating.
- Do not operate the fan if there is excessive vibration or noise.
- When the power is locked out, fans can still be dangerous because of potential “windmilling.” Always block the impeller/blade before working on any moving parts.

In case of a dryer fire:

- Turn off gas at the heater and supply tank.
- Shut off and lock electrical power.
- Seal the aeration fan inlet and any other opening to smother the fire.
- Evacuate all personnel from the area.
- Call the fire department.

1.4. Gas Leak Hazards

⚠ WARNING **If You Smell Gas:**

- Turn off gas at the source if possible.
- Do not try to light or relight any appliance.
- Extinguish any flames and remove any sources of ignition from the vicinity of the bin.
- Do not touch any electrical switch.
- Evacuate all personnel from the vicinity of the source of the smell.
- Immediately call your gas supplier. Follow the gas supplier's instructions.
- If you cannot reach your gas supplier, call the fire department.

1.5. Guards Safety

⚠ WARNING

- Keep guards in place. Do not operate with guard removed.
- Do not walk on, step on, or damage guards.
- Lock out power before removing a guard.
- Ensure all guards are replaced after performing maintenance.

1.6. Ladder Safety

⚠ WARNING

- Do not climb ladder if damaged, wet, icy, greasy, or slippery.
- Remove slippery materials on platforms, rungs and gripping surfaces.
- Maintain good balance by having at least three points of contact at all times.
- Use a fall restraint and arrest system when required. Consult your local health and safety organization.

1.7. Overhead Power Lines

⚠ WARNING

- Keep grain dryers a horizontal distance of at least 100 ft (30.5 m) from power lines.
- Do not use the grain dryer if there is a chance of any loading or unloading equipment contacting power lines.
- Do not locate grain dryers on both sides of a power line.
- Electrocution can occur without direct contact.

1.8. Towing the Grain Dryer

The grain dryer is not intended for transport on public roads. If it requires transport on a public roadway, the following steps should be taken:

⚠ WARNING

- Check with local authorities regarding transport on public roads. Obey all applicable laws and regulations.
- Always travel at a safe speed, never exceeding 20 mph (32 km/h).
- Reduce speed on rough surfaces.
- Do not transport on slopes greater than 20°.
- Use caution when turning corners or meeting traffic.
- Make sure the SMV (slow moving vehicle) emblem and all the lights and reflectors that are required by local authorities are in place, are clean, and can be seen by all over-taking and oncoming traffic.
- Always use hazard-warning flashers on tractor/towing vehicle when transporting unless prohibited by law.
- Do not allow riders on the grain dryer or towing vehicle during transport.
- Attach to towing vehicle with an appropriate pin and retainer. Always attach safety chains.
- Place the grain dryer in the transport position before moving on roads.

1.9. Drives and Lockout/Tagout Safety

Inspect the power source(s) before using and know how to shut down in an emergency. Whenever you service or adjust your equipment, make sure you shut down your power source and gas supply and follow lockout and tagout procedures to prevent inadvertent start-up and hazardous energy release. Know the procedure(s) that applies to your equipment from the following power sources.

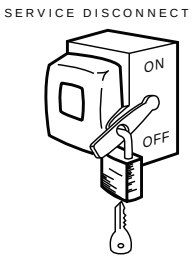
For example:

- De-energize, block, and dissipate all sources of hazardous energy.
- Lock out and tag out all forms of hazardous energy.
- Ensure that only 1 key exists for each assigned lock, and that you are the only one that holds that key.
- After verifying all energy sources are de-energized, service or maintenance may be performed.
- Ensure that all personnel are clear before turning on power to equipment.

For more information on occupational safety practices, contact your local health and safety organization.

1.9.1 Electric Motor Safety

WARNING **Power Source**



- Electric motors and controls shall be installed and serviced by a qualified electrician and must meet all local codes and standards.
- Do not modify the magnetic starter. This component provides overload and under-voltage protection.
- Motor starting controls must be located so that the operator has full view of the entire operation.
- Locate main power disconnect switch within reach from ground level to permit ready access in case of an emergency.
- Motor must be grounded.
- Guards must be in place and secure at all times.
- Ensure electrical wiring and cords remain in good condition; replace if necessary.

Lockout

- The main power disconnect switch should be in the locked position during shutdown or whenever maintenance is performed.
- In the event of unexpected fan shutdown, the fan can be reset using the main power switch located on the fan or using a reset button when equipped.

1.9.2 Variable Frequency Drive (VFD) Safety

WARNING Electric Shock Hazard

VFDs contain hazardous voltage when powered and even after power is disconnected.To prevent death or serious injury:

- Do not install or perform maintenance on the VFD unless you are a properly qualified and trained Electrician.
- Never operate the VFD when the enclosure is open.
- Remove AC line power from the VFD before doing any service or repair and wait for all power to be safely discharged from capacitors.

1.10. Personal Protective Equipment

The following Personal Protective Equipment (PPE) should be worn when installing or maintaining the equipment.

- **Safety Glasses**

Wear safety glasses at all times to protect eyes from debris.

- **Steel-Toe Boots**

Wear steel-toe boots to protect feet from falling debris.

- **Coveralls**

Wear coveralls to protect skin.

- **Work Gloves**

Wear work gloves to protect your hands from sharp and rough edges.

- **Hard Hat**

Wear a hard hat to help protect your head.

- **Fall Protection**

Use a fall arrester or fall restraint when climbing or working at heights.

1.11. Safety Equipment

The following safety equipment should be kept on site.

- **Fire Extinguisher**

Provide a fire extinguisher for use in case of an accident. Store in a highly visible and accessible place.

- **First-Aid Kit**

Have a properly-stocked first-aid kit available for use should the need arise, and know how to use it.

1.12. Safety Decals

- Keep safety decals clean and legible at all times.
- Replace safety decals that are missing or have become illegible. See decal location figures that follow.
- Replaced parts must display the same decal(s) as the original part.
- Replacement safety decals are available **free of charge** from your distributor, dealer, or factory as applicable.

1.13. Decal Installation/Replacement

1. Decal area must be clean and dry, with a temperature above 50°F (10°C).
2. Decide on the exact position before you remove the backing paper.
3. Align the decal over the specified area and carefully press the small portion with the exposed sticky backing in place.
4. Slowly peel back the remaining paper and carefully smooth the remaining portion of the decal in place.
5. Small air pockets can be pierced with a pin and smoothed out using the decal backing paper.

1.14. Safety Decal Locations and Details

Replicas of the safety decals that are attached to the grain dryer and their messages are shown in the figure(s) that follow. Safe operation and use of the grain dryer requires that you familiarize yourself with the various safety decals and the areas or particular functions that the decals apply to, as well as the safety precautions that must be taken to avoid serious injury, death, or damage.

Figure 1. Front Left Dryer Safety Decal Locations

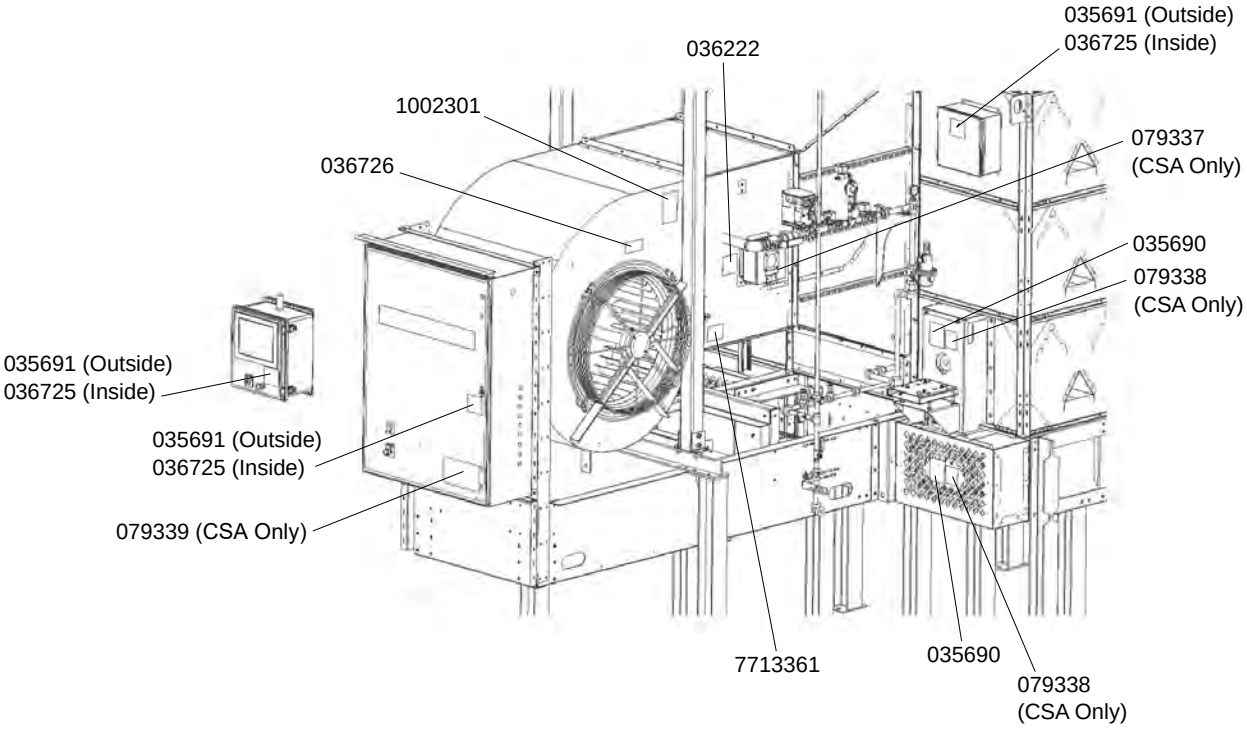


Figure 2. Front Right Dryer Safety Decal Locations

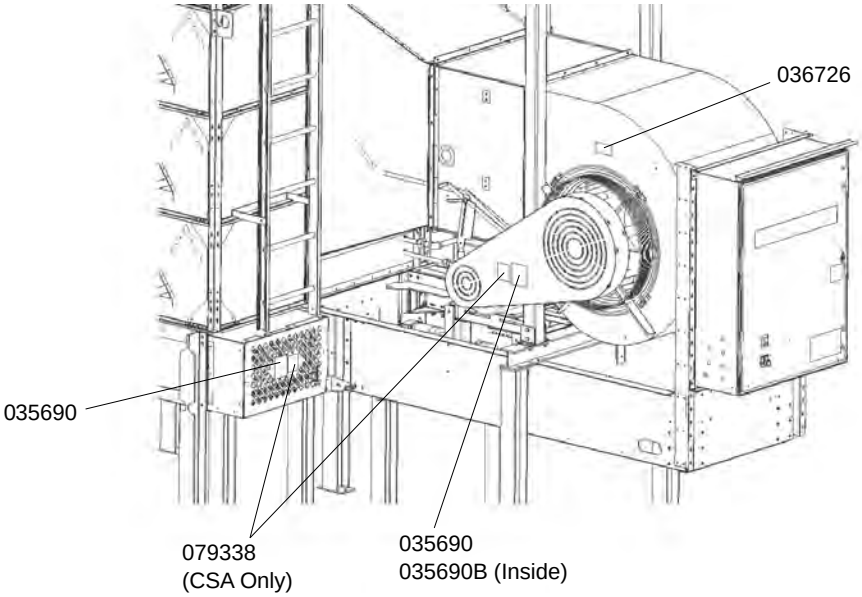


Figure 3. Drag Unload Safety Decal Locations

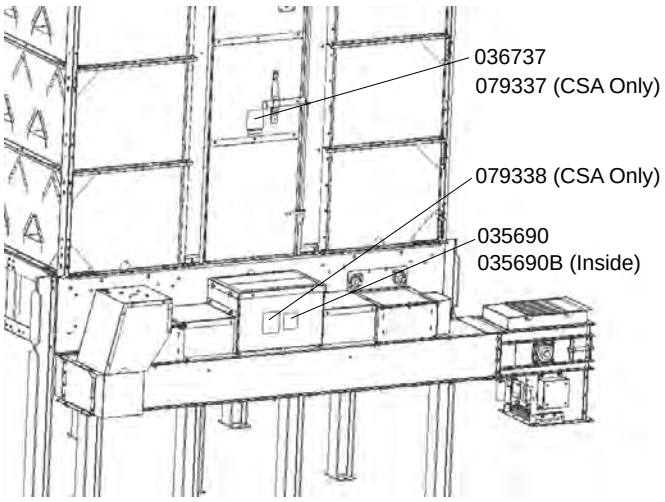


Figure 4. Auger Unload Safety Decal Locations

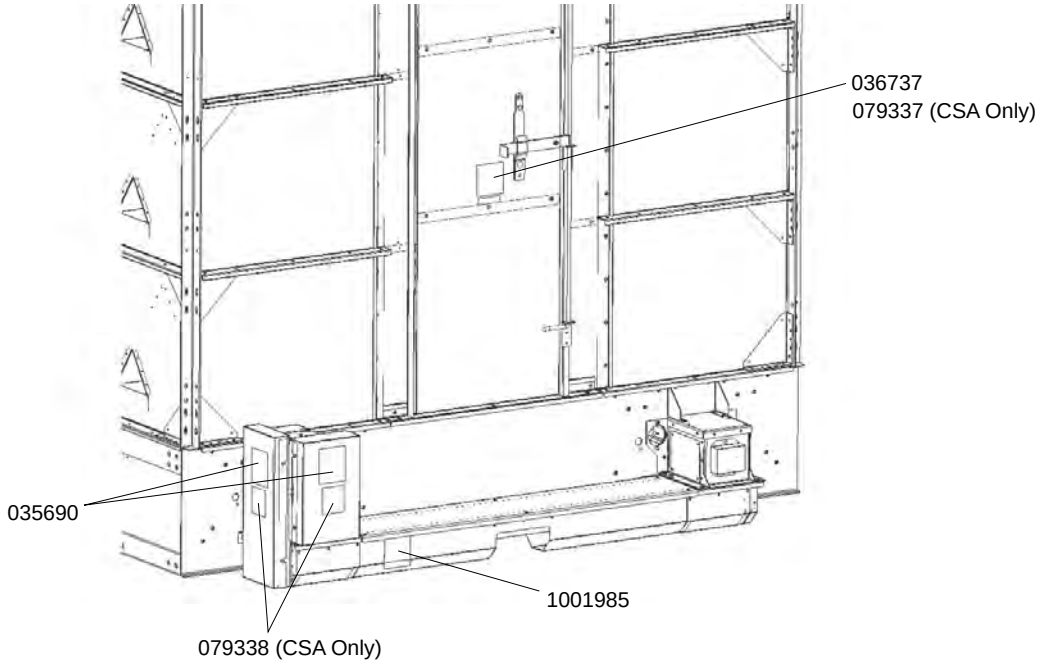


Figure 5. Door Safety Decal Locations

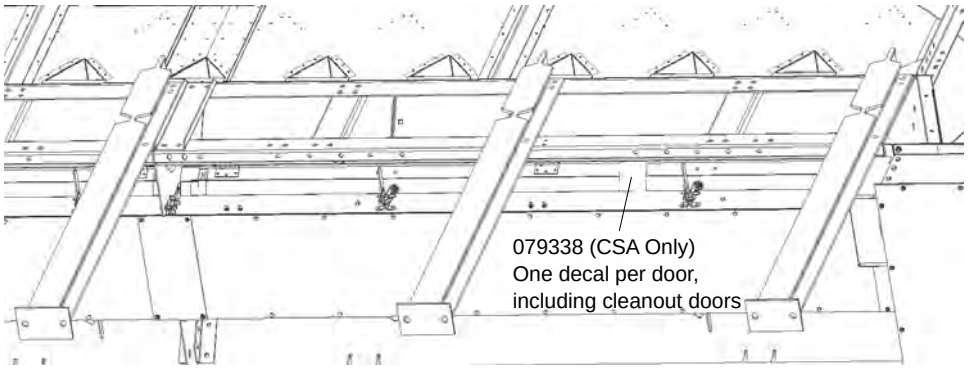


Table 1. Safety Decal Details

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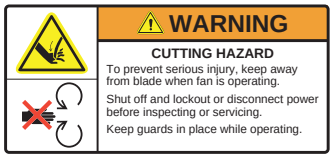
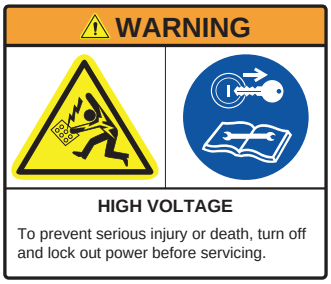


035691



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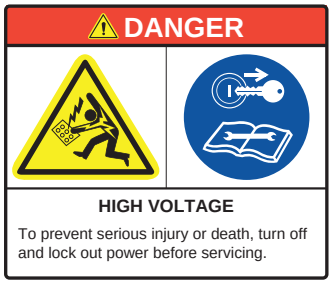

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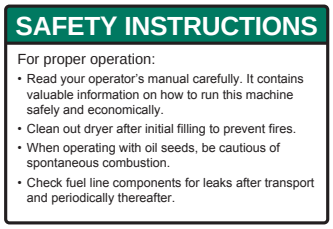

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035690

036737

1001985

1002301

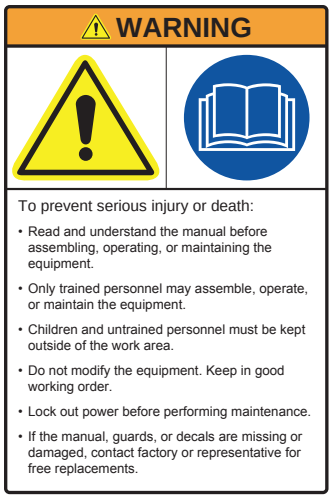


Table 1 Safety Decal Details (continued)

079338

⚠ WARNING

To avoid injury from moving parts, disconnect power to the equipment before (removing, opening) this (cover, door).

⚠ AVERTISSEMENT

Pour eviter les blessures attribuables aux pieces mobiles debrancher l'appareil avant (de retirer, d'ouvrir) (ce couvercle, cette porte).

079339

⚠ WARNING	⚠ AVERTISSEMENT

If the information in the manual is not followed exactly, a fire or explosion may result causing property damage, personal injury or loss of life.
• DO NOT store or use gasoline or other flammable vapours and liquids in the vicinity of this or any other appliance.
• WHAT TO DO 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, call the fire department.
• Installation and service must be performed by a qualified installer, service agency or the gas supplier.
FOR YOUR SAFETY - 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.
	Si les informations données dans le mode d'emploi ne sont pas respectées à la lettre, un incendie ou une explosion pourrait survenir et entraîner des dommages matériels, des blessures ou la mort.
	• Ne pas entreposer ni utiliser d'essence ou autres vapeurs ou liquides inflammables à proximité de cet appareil ou de tout autre appareil.
	• Quoi faire si vous sentez une odeur de gaz
	  • N'allumez aucun appareil ;
	  • Éteindre toutes les flammes nues ;
	  • Ne touchez à aucun interrupteur ;
	  • Appelez immédiatement votre fournisseur de gaz. Suivez les instructions du fournisseur de gaz ;
	  • Si vous ne pouvez rejoindre le fournisseur, appelez le service des incendies.
	• L'installation et les réparations doivent être confiés à un installateur ou un réparateur qualifié ou au fournisseur de gaz.
	POUR VOTRE SÉCURITÉ - Il est dangereux d'utiliser et d'entreposer de l'essence et autres vapeurs et liquides inflammables se trouvant dans des contenants ouverts à proximité de cet appareil.
	Une installation, un réglage, une modification, une réparation ou un entretien inadéquats peuvent entraîner des dommages matériels, des blessures ou la mort. Lire attentivement les instructions d'installation, de fonctionnement et d'entretien avant de procéder à l'installation ou à la réparation de cet appareil.

035690B

⚠ WARNING

MISSING GUARD HAZARD

To prevent serious injury or death, shut off power and reattach guard before operating machine.

079337

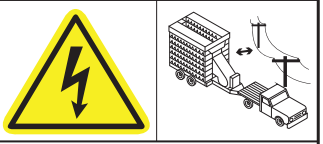
⚠ WARNING	⚠ AVERTISSEMENT
This compartment must be closed except when servicing.	Ce compartiment doit être fermé sauf pendant une réparation.

Note

The towing label is only used on certain models that can be safely towed.

040220

⚠ DANGER



ELECTROCUTION HAZARD

To prevent death or serious injury when operating or moving, keep equipment away from overhead power lines and devices.

This equipment is not insulated.

Electrocution can occur without direct contact.

2. Features

2.1. General Design Criteria

Note

Grain dryer design is based on load factors. If you wish to add more sections to your dryer in the future, please let NECO know when you place your order so it will be designed to fit to your expanding needs.

2.1.1 Tier Information

- A tier is a set of parts that make up ONE layer of the dryer (also called body section).
- The top four tiers on all dryers are made up of 18 gauge material.
- The tiers below the 18 gauge tiers will be made of heavier materials, based on the required strength of that dryer configuration.

2.1.2 Body Section Information

- An assembled dryer section may be made up of:
  - 3 to 7 tiers
  - a blower
  - a burner
- The lowest body section is attached to the dryer frame and includes the entrance door.

2.1.3 Standard Lengths

Table 2. Standard Lengths

Length in feet	Length in inches	Length in meters
16	192	4.88
24	288	7.32
32	384	9.75

2.1.4 Total Tier Levels per Length

Table 3. Total Tier Levels per Length

Length in feet	Length in meters	Minimum Tiers	Maximum Tiers
16	4.88	4	14
24	7.32	6	24
32	9.75	12	24

2.1.5 Dryer Model Number

D Series Model Numbers

The dryer model number provides information on the dryer length and capacity.

- The two digits after “D" are the dryer length.
- Multiply the remaining digits by 10 to determine the approximate bushel capacity for corn. In this example: 40 x 10 = 400 bushels

Example: D 16 60

- **16** indicates this model is a 16 foot long dryer
- **60** indicates this model has a capacity of 60 x 10 = 600 bushels

Using the same process, a model D32500 would be a 32 foot long dryer with an approximate capacity of 5,000 bushels.

K Series Model Number

The three digits after “K” indicate the nominal storage capacity. For example, a K600 holds approximately 600 bushels of grain.

2.1.6 Dryer Rating Label

Figure 6. Dryer Rating Label — Domestic

FAN/HEATER UNIT FOR USE IN CROP DRYING

WARN NG: FOR OUTDOOR INSTALLATION ONLY

REFER TO DRYER MANUAL FOR NSTALLATION, OPERATION, AND TROUBLESHOOTING NSTRUCTIONS.

MANUFACTURER: NEBRASKA ENGINEERING CO.
OMAHA, NEBRASKA, USA

TEL: 402-453-6912 OR 800-367-6208

MODEL: D24210
PART / SERIAL NO: DRYR-1234

SUPPLY VOLTAGE: 208 / 230 VAC
PHASE: 3
FREQUENCY: 60 Hz
FULL LOAD AMPS: 210 / 190
LARGEST MOTOR AMP: 59.4 / 54
SCCR: 50 kA
CONTROL VOLTAGE: 120 VAC

WARNING: HEATER COMPARTMENT MUST BE CLOSED EXCEPT WHEN SERVIC NG.

FUEL TYPE: LP
MAX MUM SUPPLY PRESSURE: 250 PSI
MAX MUM INPUT RATE: 18MM BTU/H
MIN MUM INPUT RATE: 0 9MM BTU/H
M N. SUPPLY PRESSURE FOR MAX. OUTPUT: 13 PSI
M N. SUPPLY PRESSURE FOR M N. OUTPUT: 2 PSI
RECOMMEND MANIFO D PRESSURE: 3 - 8 PSI
MAN FOLD PRESSURE @ MAX. NPUT: 10 PSI
MAN FOLD PRESSURE @ MIN. NPUT: 1 PSI

CLEARANCE TO COMBUST BLES: 6FT (2M)
PERIMETER SERVICE CLEARANCE: 6FT (2M)

Figure 7. Dryer Rating Label — Canada

Fan/Dryer Unit for Use in Crop Drying

WARNING For Outdoor Installation Only

Intended for Non-Occupied Spaces Only
For Industrial/Commercial Use

Manufacturer: Nebraska Engineering Co., Omaha, Nebraska, USA

Model: D24240
Part / Serial No.: DRYR-1234

Voltage / Phase: 575VAC / 3
Frequency: 60Hz
Control Voltage: 120 VAC
Full Load Amps: 150
Largest Motor Amps: 25
SCCR: 15 kA

Design Standard
CSA 3.8-2014 Crop Dryer

Fuel Type: Natural Gas
Max. Inlet Supply Pressure: 30 PSI
Min. Ambient Temperature: 0°F
Max. Plenum Temperature: 250 °F
Max. Temperature Rise: 230°F
Clearance to Combustibles: 6FT
Perimeter Service Clearance: 6FT

Burner 1 Top

Min. Input Rate per Burner: 0.5 MM BTU/H
Max. Input Rate per Burner: 5.8 MM BTU/H
Burner Manifold Pressure at Min. Input: 0.02 PSI
Burner Manifold Pressure at Max. Input: 1.40 PSI
Min. Supply Pressure for Max. Input: 5.0 PSI

Burner 2 & 3

Min. Input Rate per Burner: 0.6 MM BTU/H
Max. Input Rate per Burner: 8.0 MM BTU/H
Burner Manifold Pressure at Min. Input: 0.00 PSI
Burner Manifold Pressure at Max. Input: 0.93 PSI
Min. Supply Pressure for Max. Input: 6.5 PSI

Wentilateur/Séchior pour le séchage des récoltes

AVERTISSEMENT Installer á l'extérieur seulement

Pour utilisation dans des espaces non occupés uniquement
Pour utilisation industielle/commerciale

Fabricant: Nebraska Engineering Co., Omaha, Nebraska, USA

Modèle: D24240
Numéro de p èce / série: DRYR-1234

Tension / Phase: 575VAC / 3
Fréquence: 60Hz
Tension de commande: 120 VAC
Amplis de pleine charge: 150
Plus grands ampères du moteur: 25
Courant nominal de court-circu t: 15 kA

CSA 3.8 visant les séchoirs pour récoltes

type de carburant: Gaz Naturel
Max. Inlet Supply Pressure: 207 kPa
Min. Ambient Température: -17.8°C
Max. Plenum Température: 121 °C
Max. Température Rise: 110°C
Clearance to Combustibles: 2M
Perimeter Service Clearance: 2M

Burner 1 Top

Min. Input Rate per Burner: 550 MJ/H
Max. Input Rate per Burner: 6300 MJ/H
Burner Manifold Pressure at Min. Input: 0.14 kPa
Burner Manifold Pressure at Max. Input: 9.65 kPa
Min. Supply Pressure for Max. Input: 34.5 kPa

Burner 2 & 3

Min. Input Rate per Burner: 650 MJ/H
Max. Input Rate per Burner: 8400 MJ/H
Burner Manifold Pressure at Min. Input: 0.00 kPa
Burner Manifold Pressure at Max. Input: 6.41 kPa
Min. Supply Pressure for Max. Input: 44.8 kPa

2.2. Front of Dryer

Figure 8. Front of Dryer (from Fuel Train Side)

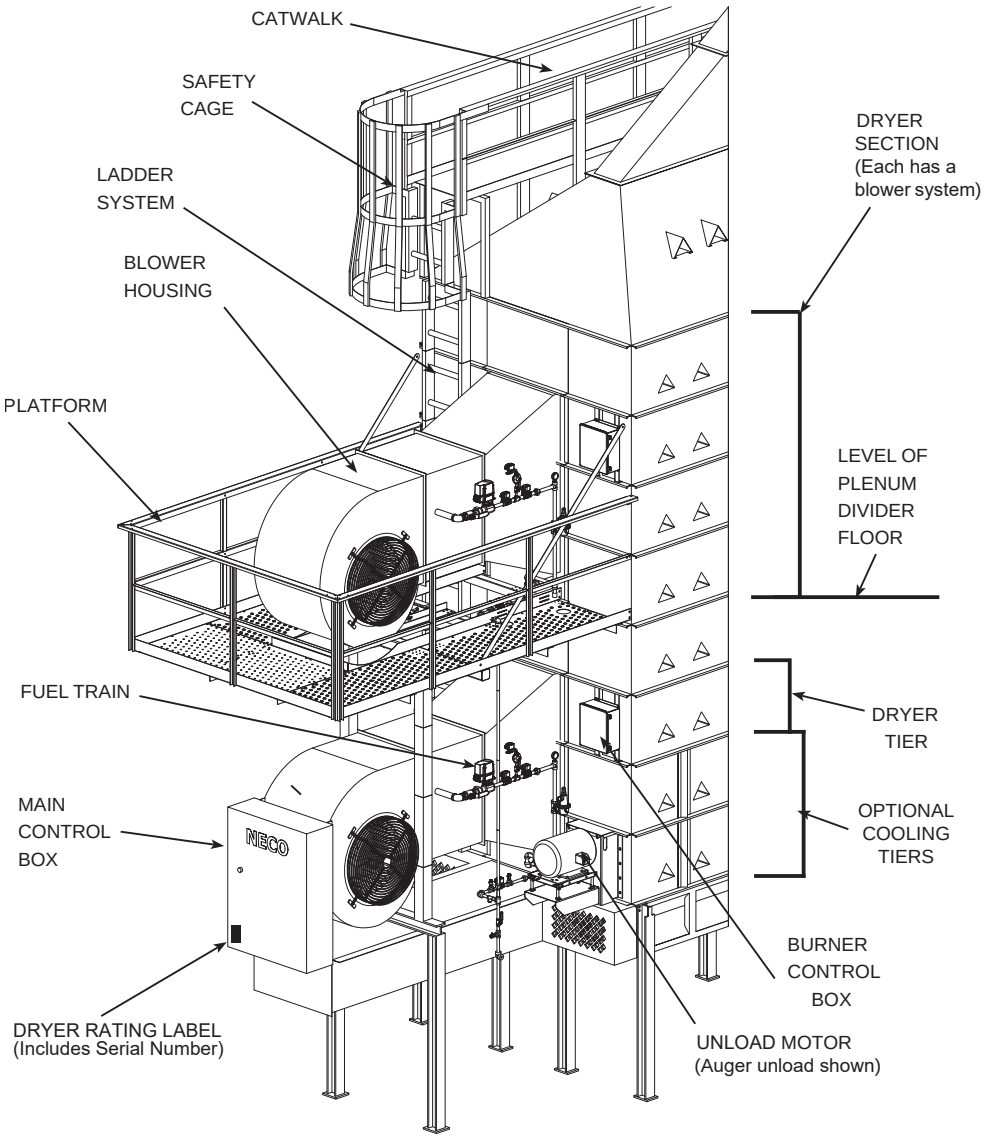
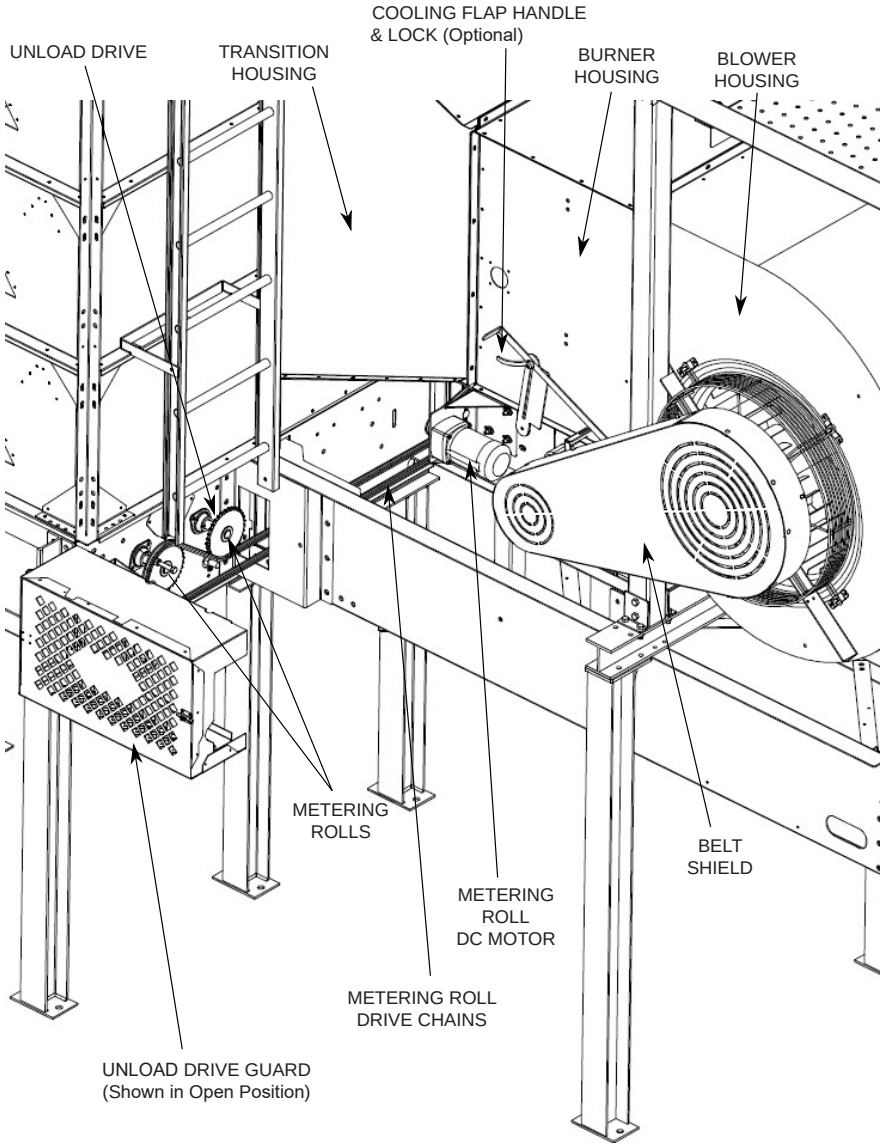


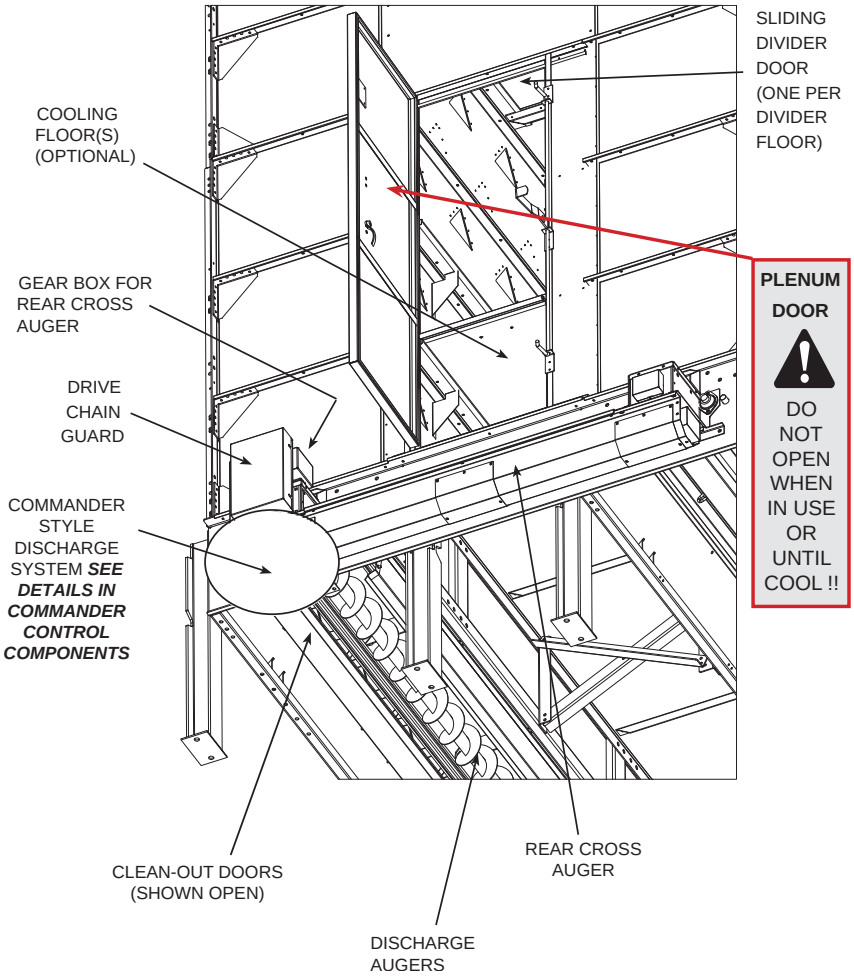
Figure 9. Front of Dryer (from Blower Belt Shield Side)



2.3. Rear of Dryer

Figure 10. Rear of Dryer (from Below)

NOTE: The Plenum Door is at the rear of dryer and allows access into the center plenum area. Each dryer section ABOVE THE PLENUM DOOR is separated by a Divider Floor with one Divider Door for plenum access. Divider Doors should always be closed during operation. Optional Cooling Floor(s) & Doors serve a totally different purpose - See Grain Cooling System.



2.4. Catwalk Positions

Figure 11. Topside Filling Options

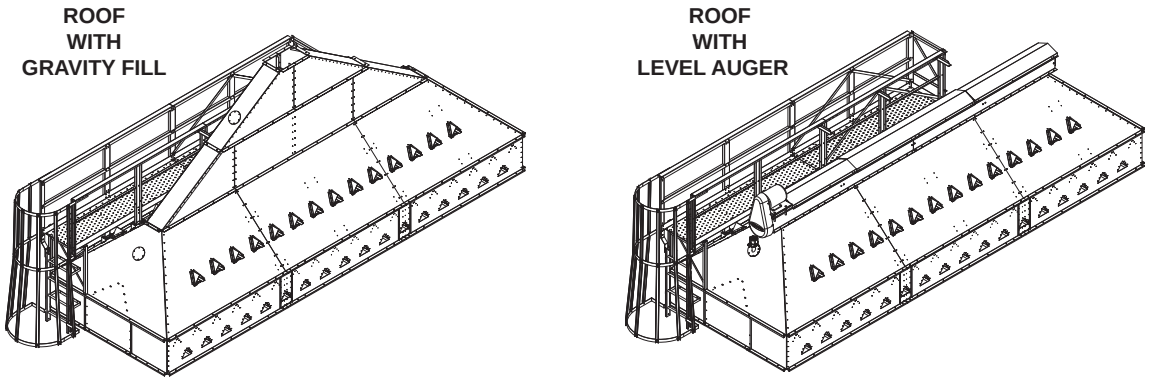
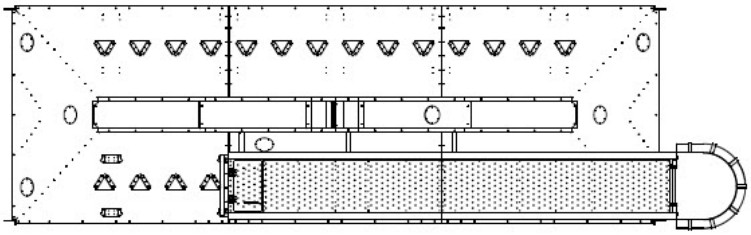
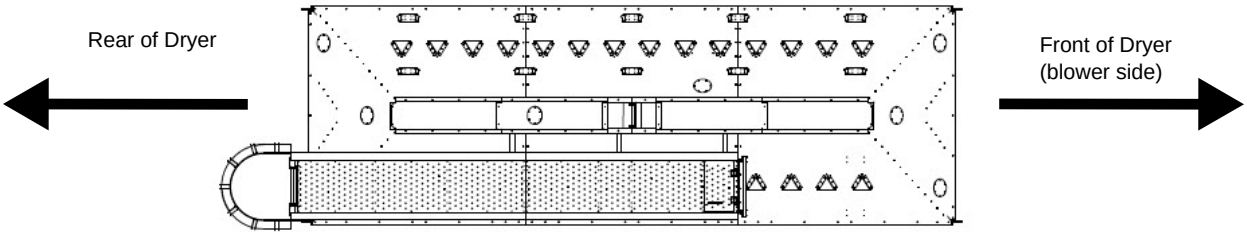


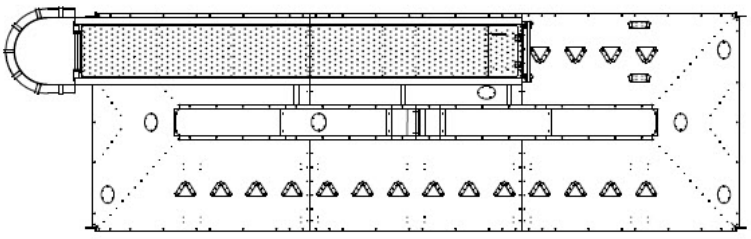
Figure 12. Catwalk Positions



Multi-Blower Dryer



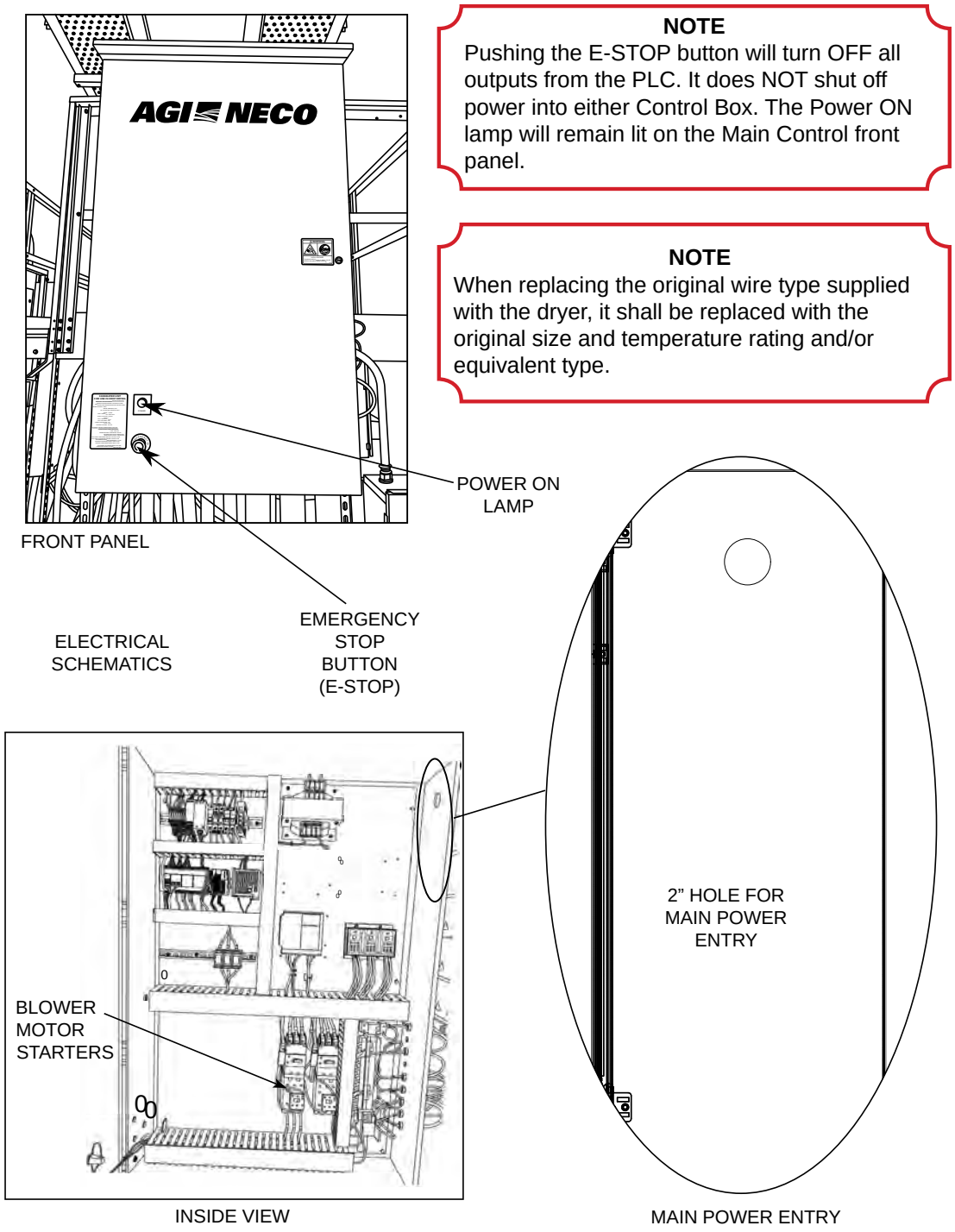
Single-Blower Dryer
(left, center, right, right extended discharge)



Single-Blower Dryer
(left extended discharge)

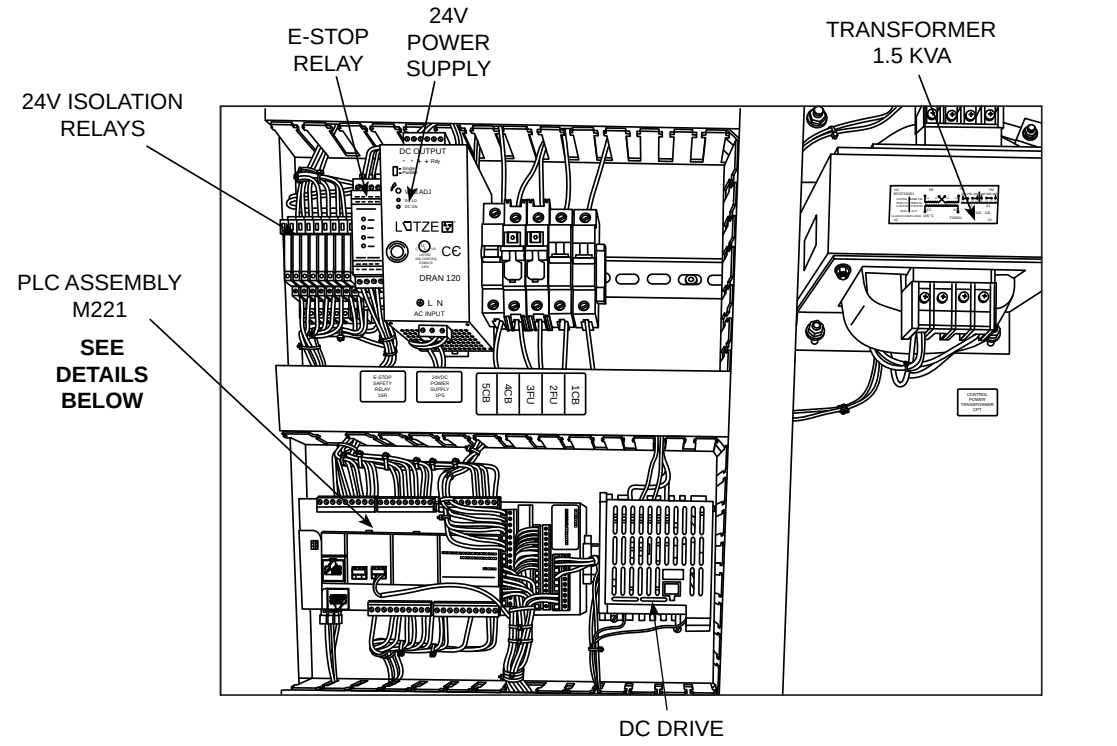
2.5. Main Control Panel

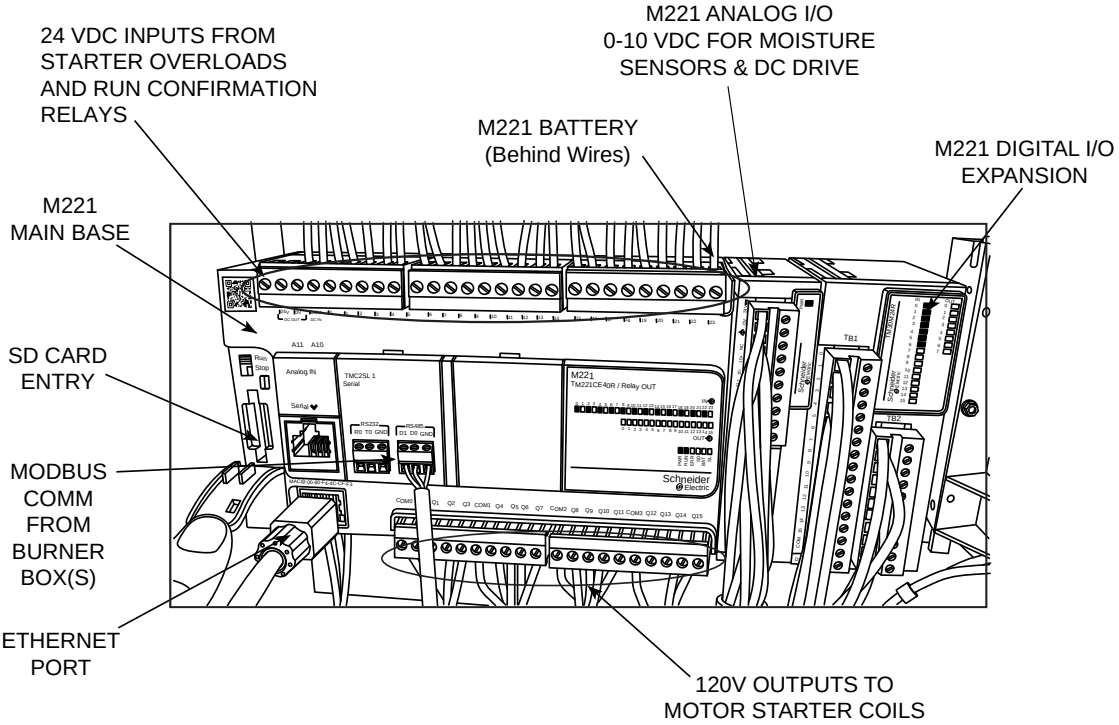
Figure 13. Main Control Panel



2.6. PLC Details

Figure 14. PLC Details





2.7. HMI Enclosure

2.7.1 Location

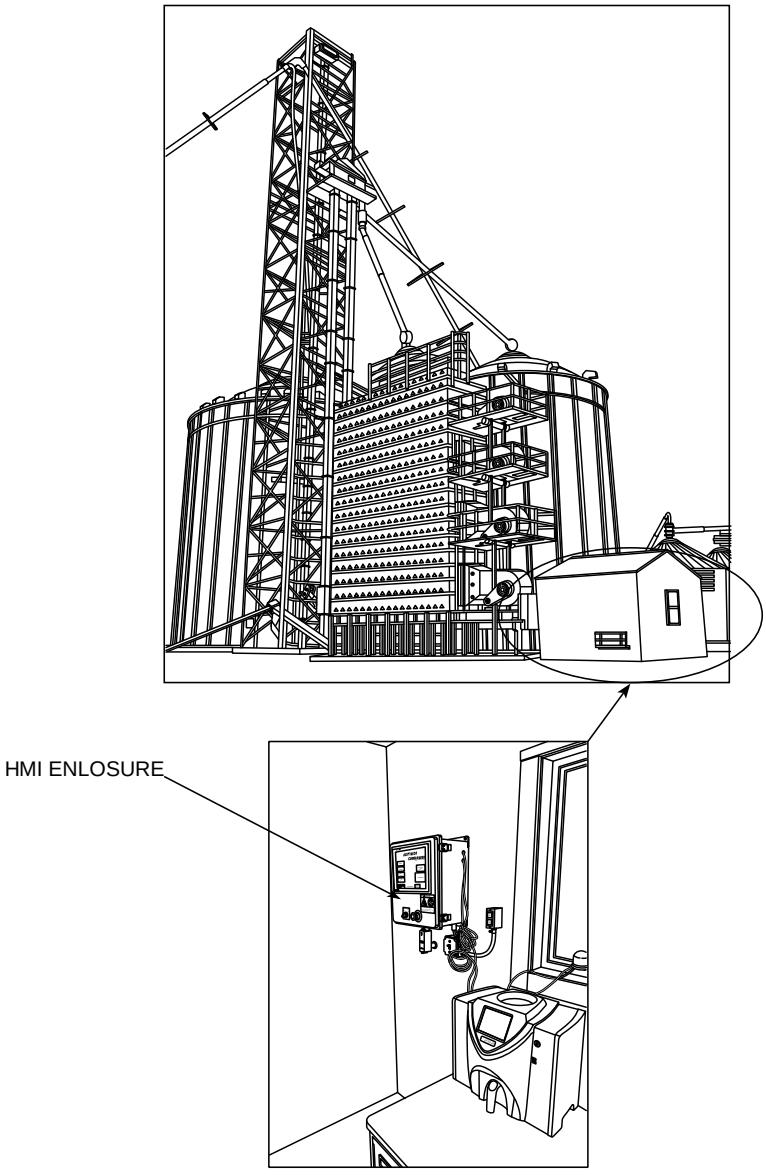
NECO recommends that the HMI enclosure be located indoors, with line-of-sight of the dryer. Maximum distance should be within 300 feet (91.4 m) — the maximum length of the Ethernet cabling.

If it is necessary to place the unit outside, subject to temperature and weather extremes, it must be installed inside another enclosure. Contact your dealer or electrician for assistance.

Note

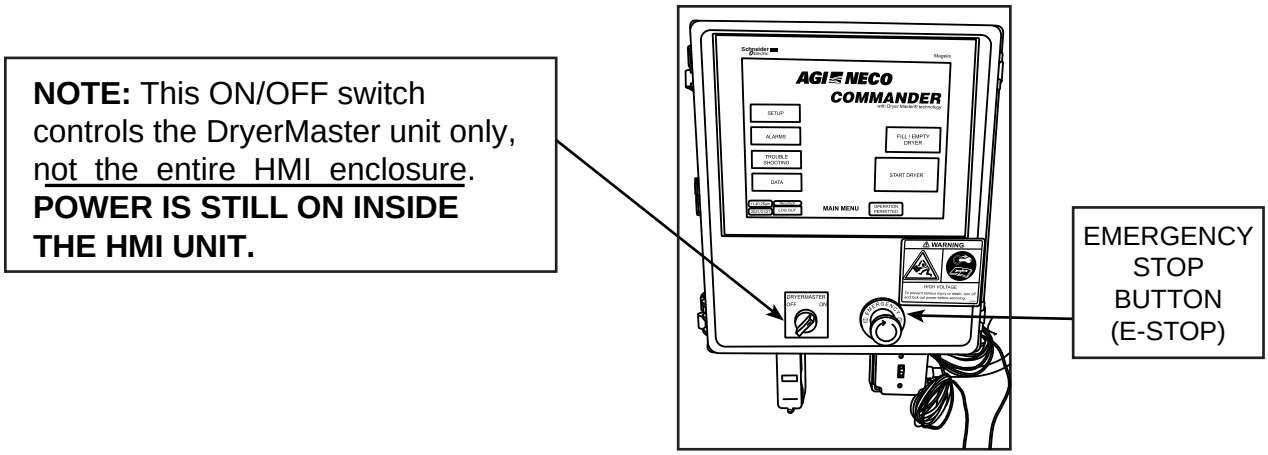
Do not locate the HMI screen in direct sunlight.

Figure 15. Example HMI Location



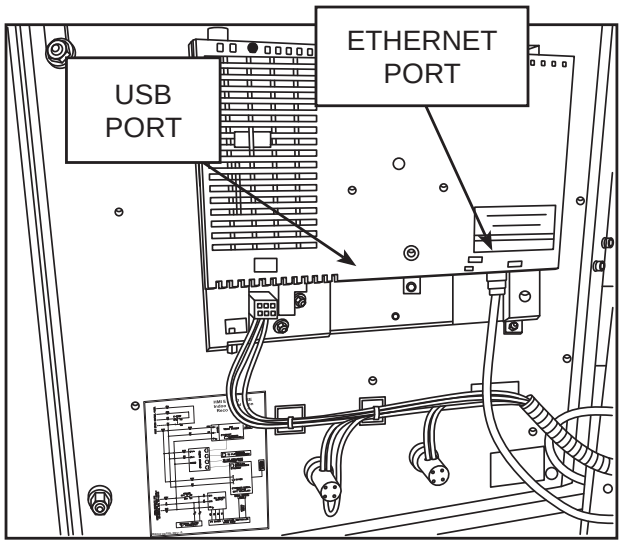
2.7.2 HMI Screen

Figure 16. HMI Screen



⚠ WARNING Pushing the E-STOP button will turn OFF all outputs from the PLC. It does NOT shut off power into the HMI or main control panel. The Power ON lamp will remain lit on the Main Control front panel.

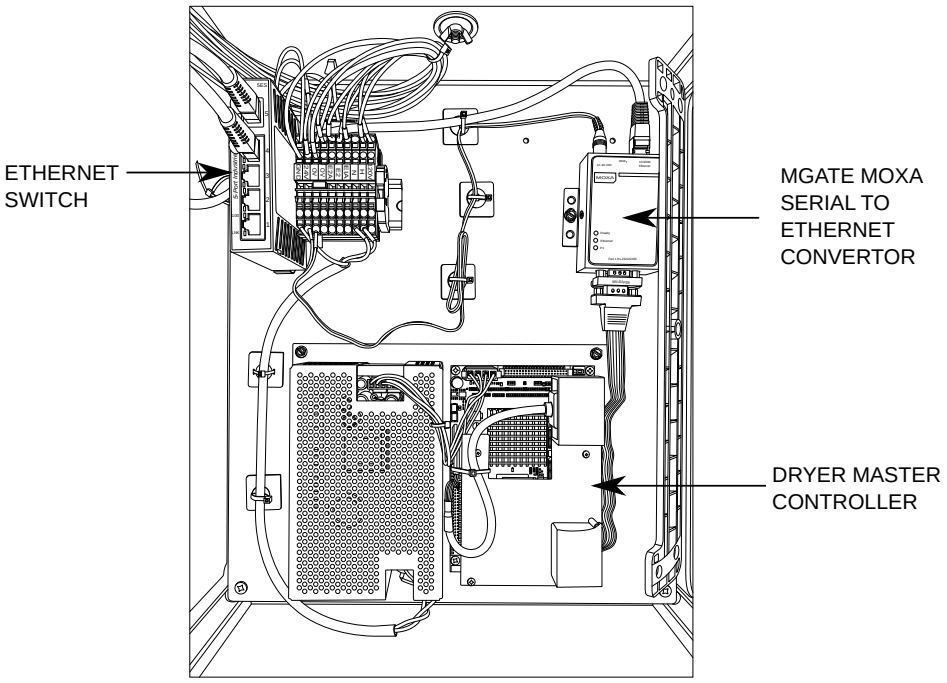
Figure 17. Rear View of HMI Screen



BACKSIDE OF “HMIGTO6310”

2.7.3 Interior

Figure 18. Inside View (D Series)



3. Transport

When transporting, follow all safety precautions and use a proper tow vehicle to help ensure safe transport of the grain dryer.

3.1. Transport Safety

⚠ WARNING

- Check with local authorities regarding transport on public roads. Obey all applicable laws and regulations.
- Always travel at a safe speed, never exceeding 20 mph (32 km/h). Reduce speed on rough surfaces. Use caution when turning corners or meeting traffic.
- Yield to other drivers and allow faster traffic to pass.
- Make sure the SMV (slow moving vehicle) emblem, maximum transport speed sign, and all the lights and reflectors that are required by local authorities are in place, are clean, and can be seen by all over-taking and oncoming traffic. Always use hazard-warning flashers on tractor/towing vehicle when transporting unless prohibited by law.
- Do not transport during times of limited visibility such as fog, snow, or heavy rain. Take extra precautions at night and at dusk.
- Keep others away from the transport vehicle and grain dryer.
- Do not allow riders on the grain dryer or towing vehicle during transport.
- Stay away from overhead obstructions and power lines when operating and transporting. Electrocution can occur without direct contact.
- Attach to a proper towing vehicle with a hitch pin and retainer. Always attach safety chains.
- Empty grain dryer of all grain or seed before transporting. Transporting a full grain dryer will place excessive loads on the tube, frame, axle, hitch, and tow vehicle.
- Do not transport on slopes greater than 20°.
- Do not transport with an under-inflated tire(s).

3.2. Transport Preparation

1. The following dryer models can be towed:

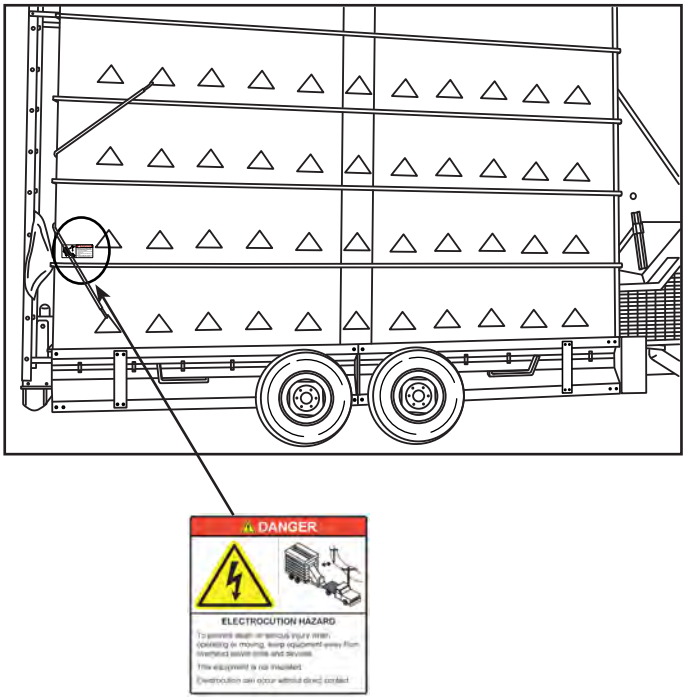
Table 4. Towable Dryer Specifications

DRYER MODEL	TOWED WITH ROOF	TOW HEIGHT	TONGUE WEIGHT (lbs)	TOWED WEIGHT (lbs)
D1670	NO	10' 4"	1,000	10,580
D1680	NO	12' 4"	1,000	13,130
D24108	NO	14' 4"	2,500	20,800

Note

- NECO places Warning Label #040220 on both sides of the dryer concerning the Danger of Power Lines.
- Overall width to outside of tires is 10' 2".
- The roof base section is 37" tall.
- Level auger system or gravity fill system are assembled on site.

Figure 19. Towable Dryer

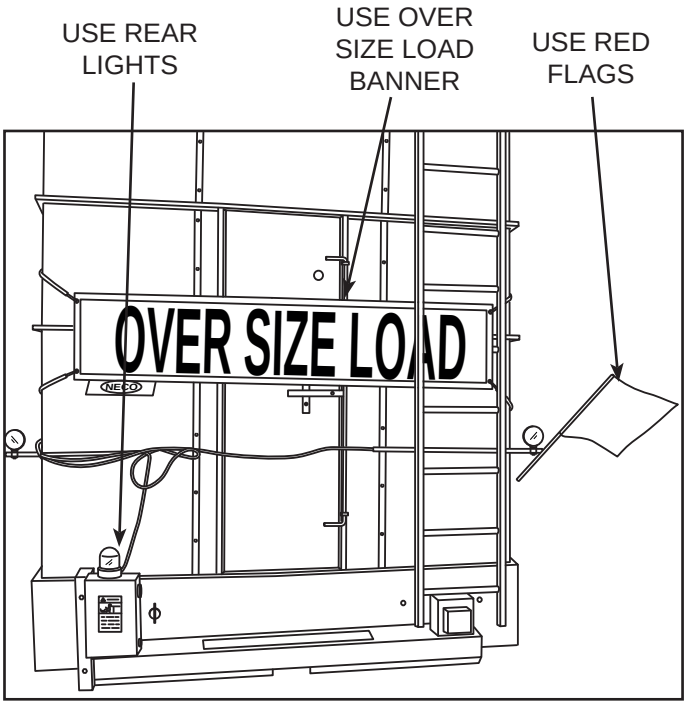


2. Requirements for towing vary from state to state. Contact the DOT for each state the trip includes for specific requirements. NECO does not provide, but suggests using the following:
   a. Use an OVER SIZE LOAD banner at rear.
   b. Use four red flags: two at the front and two at the rear.
   c. Use tail lights at the rear of dryer.
   d. Axles do NOT have brakes. Ensure the tow vehicle size and brakes are adequate.

e. Use a safety chain setup.

f. Tires are standard 15" x 8". Wheel have six hole rims with 31 x 10.5 R15 LT tires. NECO does not supply a spare tire.

Figure 20. Preparation for Towing



4. Assembly

4.1. Assembly Safety

⚠ WARNING

- All installation and servicing operations are to be carried out by qualified technicians.
- Do not take chances with safety. The components can be large, heavy, and hard to handle. Always use the proper tools, rated lifting equipment, and lifting points for the job.
- Do not stand on, under, or near any component that is not secured.
- Carry out assembly in a large open area with a level surface.
- Always have two or more people assembling the grain dryer.
- Make sure you have sufficient lighting for the work area.
- Tighten all fasteners according to their specifications. Do not replace or substitute bolts, nuts, or other hardware that is of lesser quality than the hardware supplied by the manufacturer.
- Stay away from overhead power lines and other obstructions during assembly. Contact with power lines can cause electrocution.
- Do not work in high winds.

4.2. Check the Shipment

Unload the grain dryer parts at the assembly site and compare the packing slip to the shipment contents. Ensure that all items have arrived and that none are damaged. Take pictures of shipments prior to, or just after, unloading if there are any damages.

Report missing or damaged parts immediately to ensure that proper credit is received from NECO or your representative, and to ensure that any missing parts can be shipped quickly to avoid holding up the assembly process.

Important

Do not assemble or install damaged components.

4.3. Product Storage

NECO Grain Dryer parts should be stored in a clean, dry location to prevent rust and corrosion of steel components.

For outdoor storage, protection should be provided.

Rust on Galvanized Parts

1. White rust forms when moisture is allowed to collect on galvanized surfaces that have yet to develop the durable zinc oxide layer. This zinc oxide layer naturally occurs as the surface interacts with carbon dioxide, and is characterized over time by the dull grey appearance that weathered galvanized surfaces get.
2. Parts that are not well ventilated or well drained can collect water between surfaces and develop white rust.
3. White rust is not a structural concern if its development is stopped in the early stages. A light film or powdery residue can occur after a period of heavy rainfall or a short time of improper storage. If white rust

has started to develop, separate parts and wipe off any moisture. Next, using a clean cloth, apply a thin layer of petroleum jelly or food-grade oil to the entire part. Due to safety concerns with installation and use, NECO does not recommend the use of oil on other parts such as roof sheets, rungs, treads, and platforms.

4. If moisture is left on parts, this white rust can become more aggressive and turn into red rust. Red rust can cause degradation in the material and become a structural concern. Any parts that have red rust should be replaced immediately.

Storage Guidelines

- Keep all bundles dry before assembly of the grain dryer.
- Start assembly as soon as possible.
- Do not lay bundles on the bare ground. Raise all bundles 6" to 8" off the ground on wood blocks or timbers.
- All other bundles material should be placed so that they are well sloped to promote good drainage.
- Temporary storage can be provided by erecting a simple framework supporting a waterproof tarp.
- All hardware boxes should be stored inside. These are not waterproof, and will deteriorate in normal weather conditions, allowing moisture to contact the parts inside.

If Parts Become Wet

1. If parts become submerged or wet, the bundles should be opened as soon as possible, sheets or material separated and dried. Keep separated until assembly.

   Brace parts properly so as to avoid damage or injury from material falling when in storage.

2. Any boxed parts that become wet should be dried and stored in a new box that is free of moisture.
3. In addition to wiping down the grain dryer parts, a food-grade oil can also be applied with a clean, lint-free cloth. This will assist in preventing any further moisture from contacting the galvanizing on the steel. Due to safety concerns with installation and use, NECO does not recommend the use of oil on other parts such as roof sheets, rungs, treads, and platforms.

4.4. Site Preparation

Important

- NECO recommends always hiring an expert for proper advice, accurate paperwork and safe procedures to complete this task in conformance with local codes.
- The actual foundation specifications and concrete pad specifications must be determine from local data. Anchors that are sufficient for local wind loading must be installed. Consult a civil engineer.
- For data and specifications related to wind loads, dryer weight, and foundations/weight load points, refer to Section 6. – Appendix on page 202.

4.4.1 Concrete Work - Overview

Important

The weight of grain in a full NECO dryer will range from 16 tons to more than 200 tons.

- Support the frame of the dryer with properly designed and sized footings.
- NECO recommends having a concrete pad under the dryer to allow for easy clean-up.
- The dryer must be anchored and secured against wind loading. Consult a civil engineer who has experience with soil AND wind conditions in your area.
- Work with your millwright or installer, and consult NECO if additional information is needed.

4.4.2 Set Up Fuel Supply

⚠ WARNING Hire a professional to plan, setup, and connect the chosen fuel supply: liquid propane or natural gas. Either type MUST include an emergency shut-off valve.

For Dryer Installations in Canada

The equipment shall be installed in accordance with the Natural Gas and Propane Installation Code, CSA B149.1 and 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.

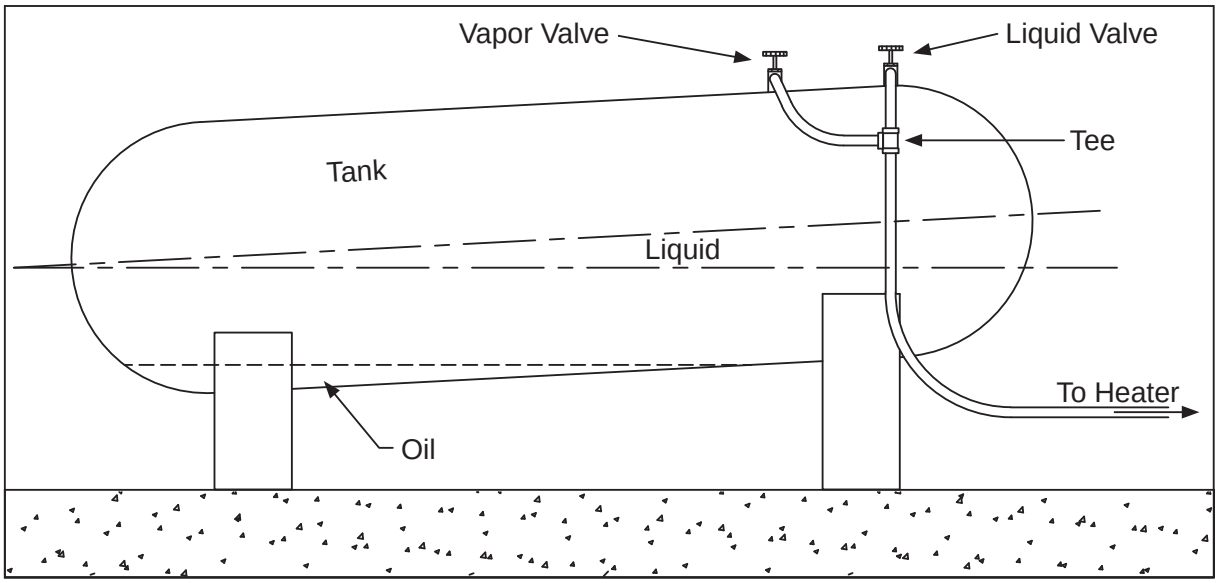
Propane (LP) Fuel Source

Contact your gas supplier regarding the location of fuel tanks and the safe storage, transport and handling of fuel. The LP storage tank must be located at least 25 ft (8 meters) from any structures. Local codes may require more distance.

When propane is the fuel source the tank, use a **vapor tap** and a **liquid tap**. Equip the liquid tap with a rapid flow shutoff valve. This valve will stop the flow of propane if a fuel line breaks.

Prevent oil sediment from entering the fuel system by propping one end of the propane tank higher than the other end, as shown in Figure 21.

Figure 21. Propane Tank Installation



Important

- Do not use a converted anhydrous ammonia tank. Fuel train components can be damaged by anhydrous ammonia. Fuel train components damaged by anhydrous ammonia are not covered under warranty.
- Oil entering the dryer fuel system will VOID the warranty on fuel train components. Install the fuel tank as shown in Figure 21.

4.4.2.1 Sizing the LP Supply Line

Note

Size the line for maximum capacity of your dryer system, while taking into consideration any future plans to upgrade.

- The supply regulator set should be located near the dryer to reduce the supply line length.
- Refer to the Standard Model Specifications table in Section 5. – Specifications on page 191 to obtain the MAX burner output value. Then, choose a proper (slightly greater) flow rate for current or future flow requirements. Based upon the flow requirements, which includes the 1 psi pressure drop, use the following table to choose the line material and length that best suits the system requirements.

Table 5. Flow Rate: MM BTU/Hr (kWH) - Schedule 80 Pipe with 1 psi Pressure Drop

Piping Length ft (m)	Pipe Size				
	1/2" NPT	3/4" NPT	1" NPT	1-1/4" NPT	1-1/2" NPT
10 (3.05)	27.45 (8045)	62.04 (18182)			
15 (4.57)	22.51 (6597)	50.51 (14803)			
20 (6.10)	19.22 (5631)	43.92 (12872)			
30 (9.14)	15.92 (4666)	35.69 (10458)			
40 (12.19)	13.73 (4022)	30.74 (9010)	60.39 (17699)		
50 (15.24)	12.08 (3540)	27.45 (8045)	53.80 (15768)		
60 (18.29)	10.98 (3218)	24.71 (7240)	48.86 (14320)		
70 (21.34)	9.88 (2896)	23.06 (6758)	45.02 (13194)		
80 (24.38)	9.33 (2735)	21.41 (6275)	42.27 (12389)		
90 (27.43)	8.78 (2574)	20.31 (5953)	39.53 (11585)		
100 (30.48)	8.24 (2413)	19.22 (5631)	37.33 (10941)		
150 (45.72)	6.59 (1931)	15.37 (4505)	30.20 (8849)		
200 (60.96)	6.04 (1770)	13.18 (3862)	26.35 (7723)	56.55 (16573)	
300 (91.44)		10.43 (3057)	20.86 (6114)	45.57 (13355)	
400 (121.92)		9.33 (2735)	18.12 (6114)	38.98 (11424)	59.84 (17538)

Natural Gas (NG) Fuel Source

- Refer to the Standard Model Specifications table in Section 5. – Specifications on page 191 for maximum heat capacity output. Ensure that the pressure supplied to the fuel train inlet is 15 to 20 psi.
- The natural gas inlet line fitting for all NECO Dryers is 2".
- The supply regulator set should be located near the dryer to reduce the supply line length.
- Contact your local natural gas supplier for line sizing.

Fuel Train Inspection

Important

The following inspections should be done at initial installation, as well as annually, to ensure safety:

- The dryer fuel train shall be inspected for leaks to verify the gas tightness of the dryer components and piping under normal operating conditions. After installation and annually, use a solution of soap and water to check fittings and pipe for leaks.
- The gas tightness of the solenoids can be checked by adding test gauges to the test ports of the main solenoid valves. While the dryer is running, turn off the manual shutoff valve before each burner, and turn off the fuel supply manual shutoff at the inlet fuel supply to the dryer. Monitor the pressure of upstream and downstream pressure gauges. If the pressure of any of the gauges drops to zero, there could be a leak in the system. Use a solution of soap and water to find the source of the leak.

4.4.3 Set Up Electrical Supply

⚠ WARNING

- NECO recommends hiring an expert for proper advice, accurate paperwork, and safe procedures to complete electrical work in conformance with local codes.
- For dryer installations in Canada — Electrical disconnect shall be installed and all wiring must be done in accordance with the Canadian Electrical Code, Part 1, CSA C22.1.

- The Dryer Rating Label on the control panel lists the full-load amps required for the dryer and the input voltage.
- The customer is responsible for providing materials and labor to connect the control to the power source, including a properly sized and placed fused disconnect box.
- The electrical power supply will have to meet service amp requirements.
- Copper wire of the appropriate size, based on the required amps and distance, must be run between the main disconnect switch and the distribution block located in the dryer control panel.

4.5. Pre-Assembly of Dryer Sections

4.5.1 Identify Groups of Parts

Note

All dryers require some assembly. The following information is included to help organize that overall task:

- The level of assembly required depends on many factors concerning the dryer model and optional equipment.
- Gather, identify, and separate all parts and hardware. (See Section 4.5.2 – Assembly Hardware Key on page 38.)
- Study this manual and look closely at the equipment overview section to become familiar with the various parts.
- For smooth assembly, the parts should organized into groups.

Note

Unless otherwise specified, standard assembly hardware should be zinc-plated and Grade 5. Tighten all connections firmly.

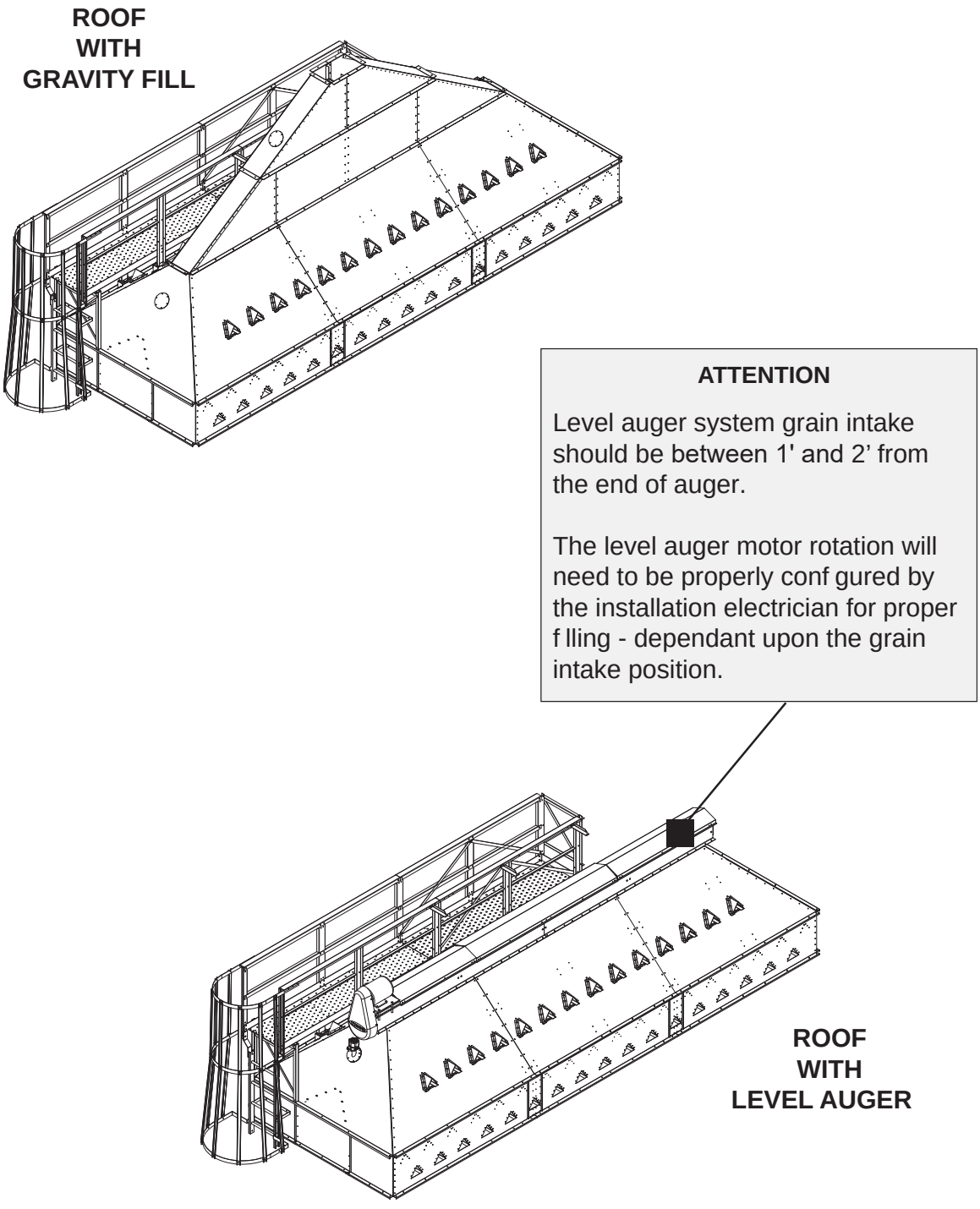
4.5.2 Assembly Hardware Key

Table 6. Assembly Hardware Key

Key	Item Description
HB	HEX BOLT
CB	CARRIAGE BOLT
FW	FLAT WASHER
LW	LOCK WASHER
HN	HEX NUT
WL	FLANGED WHIZ-LOCK NUT
WN	WING NUT

4.5.3 Roof Systems

Figure 22. Roof Systems



Roof with Level Auger

Note

To plan proper position of the motor end, grain intake position, sensor end, auger direction, etc. refer to Section 4.14.2 – Final Electrical Hookup on page 167.

Figure 23. Level Auger Assembly Details

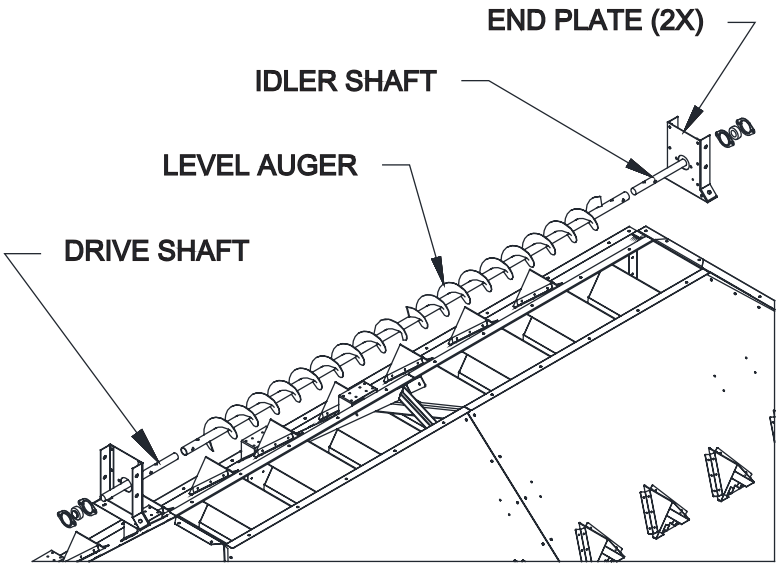


Table 7. Level Auger for Various Dryer Sizes

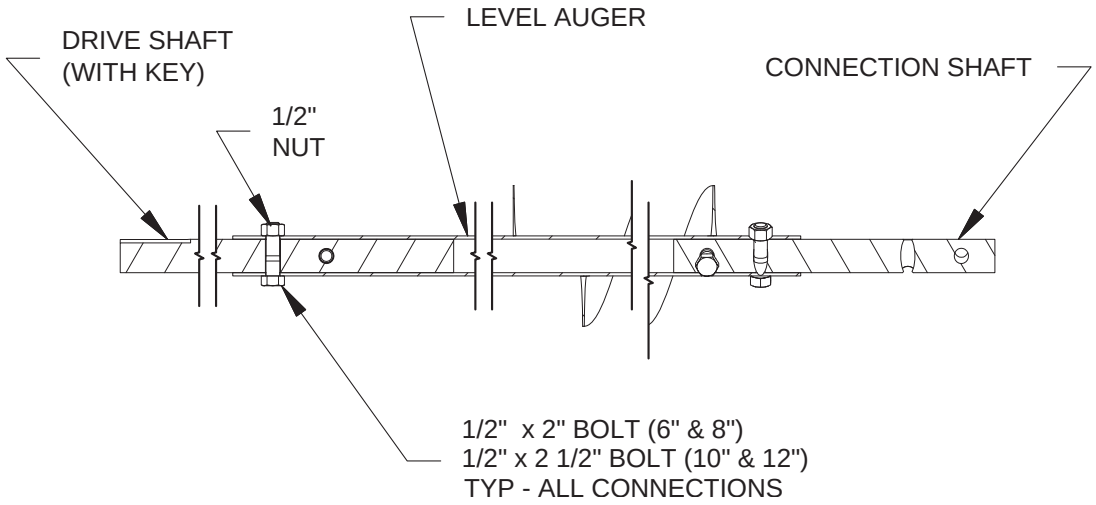
	Dryer Size	Auger Size	
		8"	10"
Idler Shaft	16'	040420	N/A
	24'	040420	045004
Drive Shaft	16'	040419	N/A
	24'	040419	045005
Level Auger	16'	7715174	N/A
	24'	7714719	7715097
End Plates	16'	7714720	N/A
	24'	7714720	7715090
Side Skirt	16'	7714201	N/A
	24'	7714716	7715091
Hanger Bearing Support/ Splice	16'	040417	N/A
	24'	040417	044871
Idler Shaft Shield	16'	044344	N/A
	24'	044344	044874
Hanger Bearing Holder Half	16'	N/A	N/A

Table 7 Level Auger for Various Dryer Sizes (continued)

	24'	023200	045007
Level Auger Cover	16'	7714718	N/A
	24'	7714717 7714718	7715093 7715094 7715096
Level Auger Cover Plate	16'	040421	N/A
	24'	040421	044872

1. Using 1/2" hardware, bolt the connecting shaft(s), drive shaft, and idler shaft to the level augers and extension auger(s) as needed.

Figure 24. Auger Shaft Connections

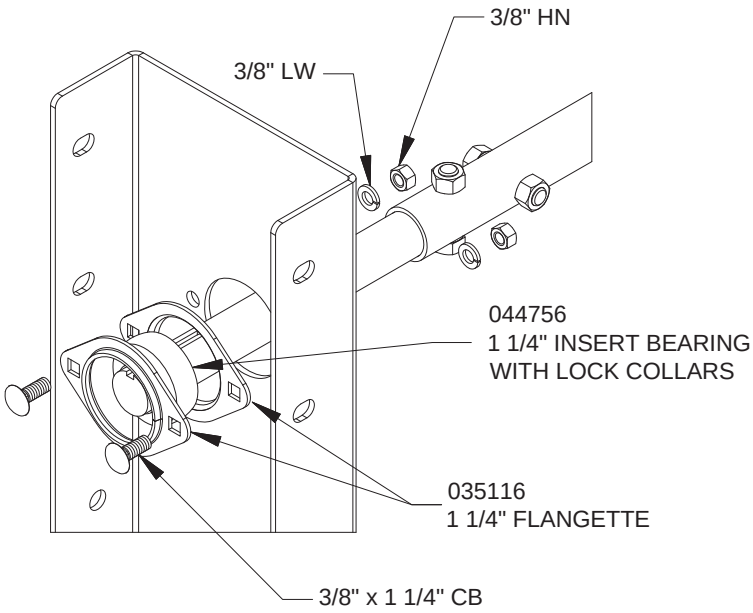


Note

Ensure the drive end of the shaft (with the keyway) is on the same end as the motor.

2. Position the end plates at both ends of the auger assembly, and then place the 044756 insert bearings and 035116 flangettes on both ends.
3. Using 3/8" hardware, pre-assemble the bearings and flangettes to the end plates at both ends, but DO NOT tighten locking collars on the bearings until later in the process.

Figure 25. Pre-assemble Insert Bearing and End Plates to Auger

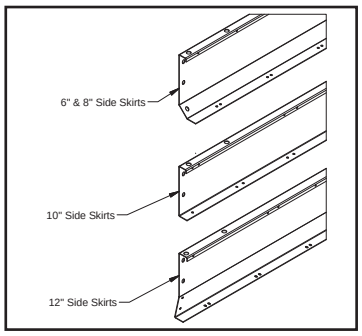


4. Using 1/4" x 3/4 HB (HB), flat washers (FW), and flanged whiz-lock nuts (WL), bolt the end plates with auger assembly to the roof.
5. Using 1/4 x 3/4 HB, FW, and WL, bolt the required side skits to the roof.
6. Using 3/8 x 1 HB, FW, LW, and HN, bolt the hanger bearing supports to the side skirts.

   Note

   12" side skirts have an extra splice placed under the bearing support to seal the gap from grain flow, etc. Splice plate attaches to the OUTSIDE of skirts using 1/2" x 1" bolts with Whiz-lock nuts.
7. Using 1/2" hardware, bolt the hanger bearing holder halves to the hanger bearing bracket.
8. Determine correct wood bearing size and place it in the hanger bearing holder halves.

Figure 26. Assemble Side Skirts, Idler Shaft Shield and Hanger Bearing Support Splice



Differences in Side Skirts

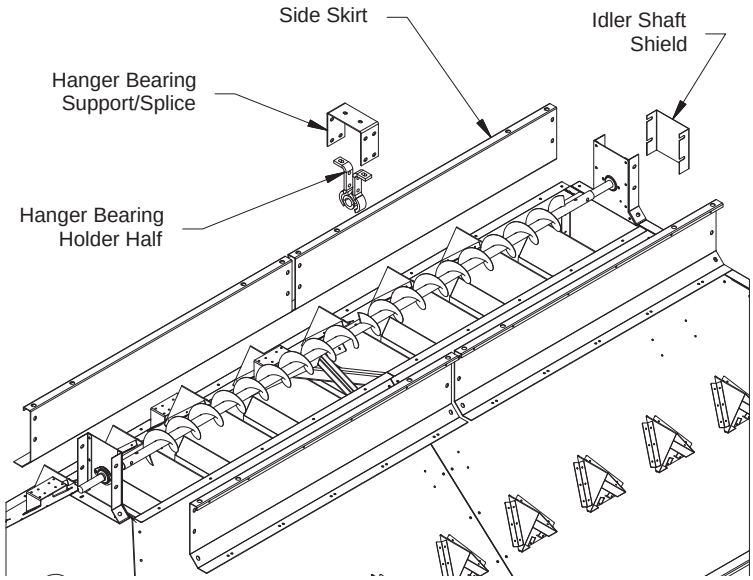
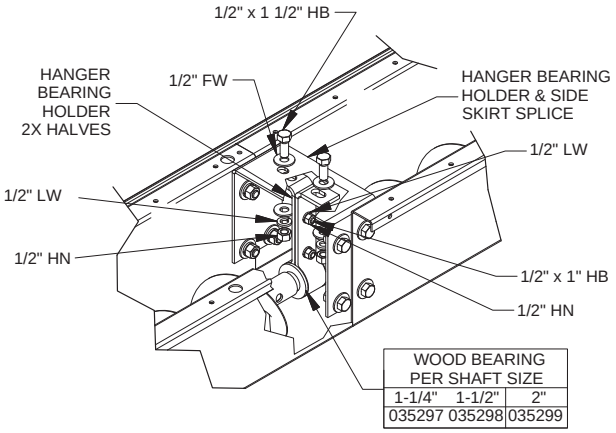
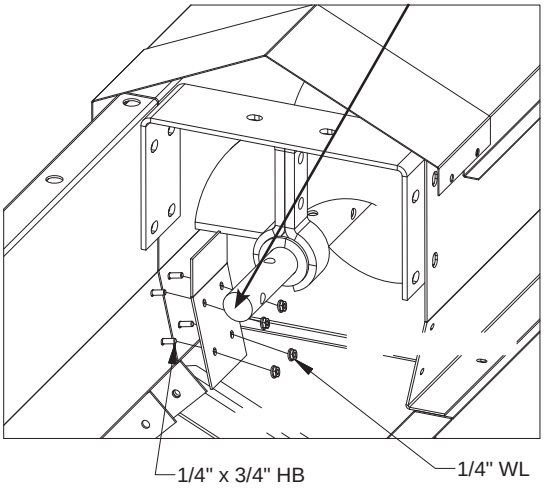


Figure 27. Hanger Plate / Wood Bearing Details



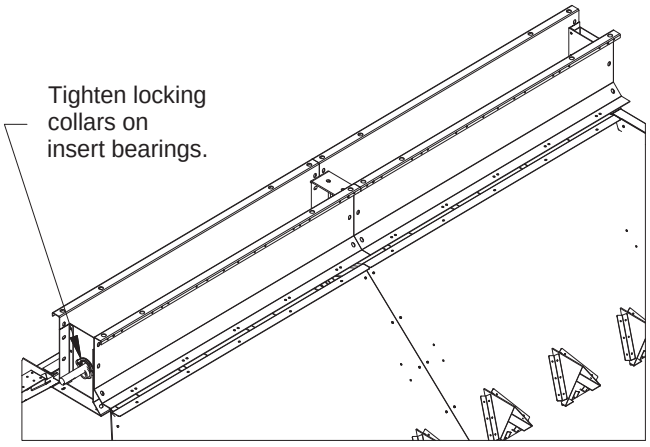
WOOD BEARING PER SHAFT SIZE		
1-1/4"	1-1/2"	2"
035297	035298	035299

Figure 28. Details of Extra Splice Plate (for 12" auger size only)



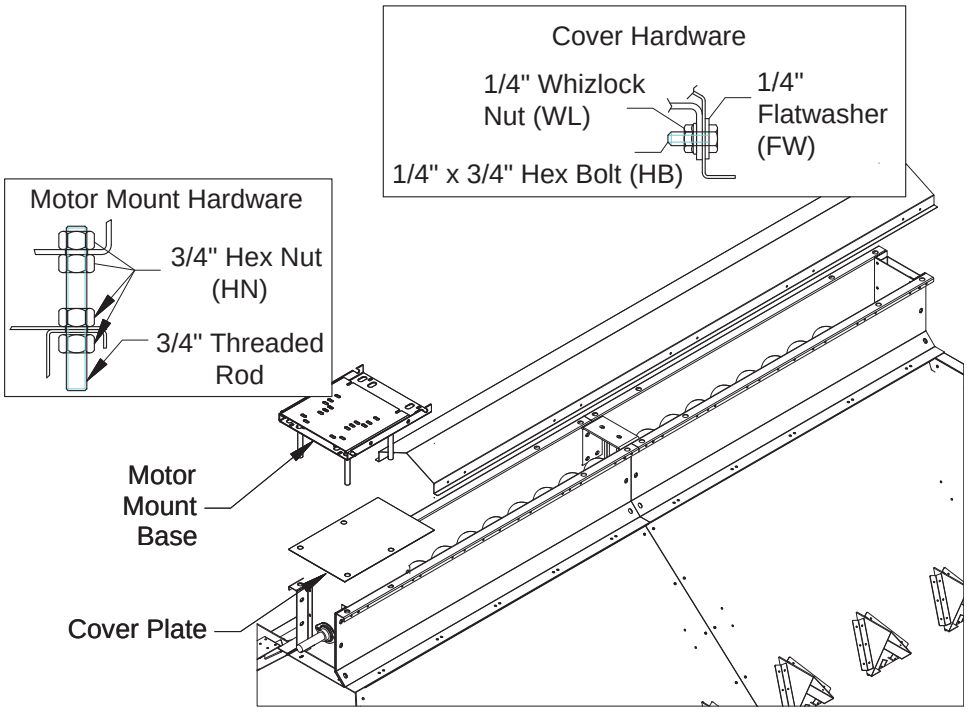
9. Center the augers onto the wood bearings.
10. Tighten down the locking collars on the insert bearing at both ends.
11. Using 1/2" x 1" HB, FW, and WL, bolt the required idler shaft shield to the auger support channel opposite the motor end. (See the preceding tables.)

Figure 29. Position Auger Assembly and Tighten Lock Collars



12. Using four 3/4" x 5" threaded rod and hardware, assemble the level auger cover plate and motor mount base to the side skirts.
13. Using 1/4" hardware, assemble the pitched level auger covers to the side skirts.

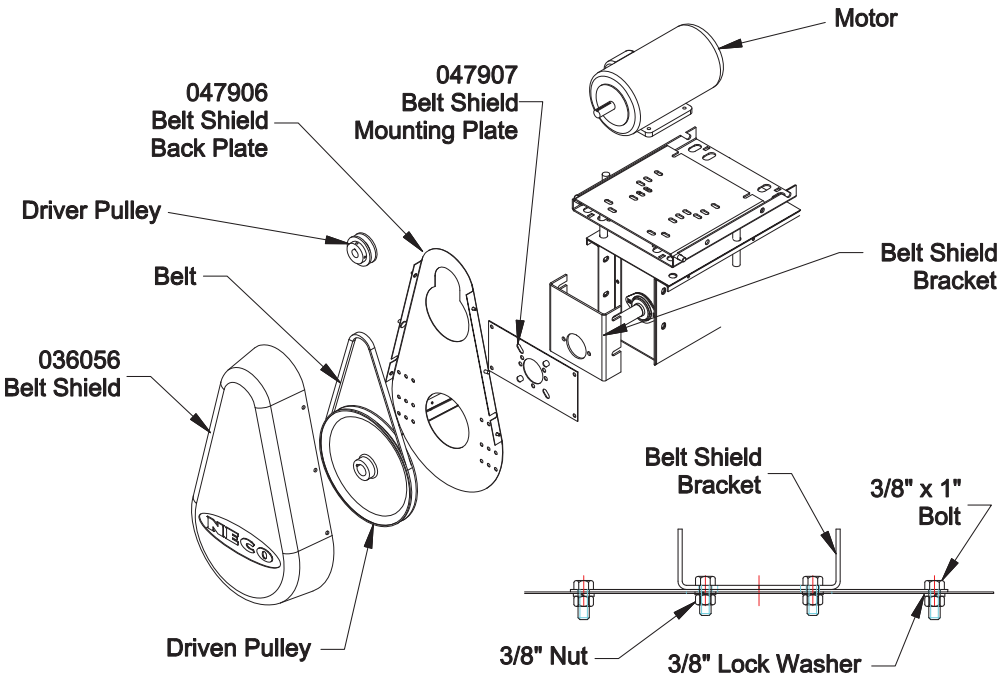
Figure 30. Assembling the Motor Mount Base to the Side Skirts



14. Using 5/16" x 1" HB, FW, LW and HN, bolt the motor onto the motor mount pivot plate.
15. Using 5/16" x 2-1/2" carriage bolts (CB) and wing nuts (WN), attach the motor mount pivot plate to the motor mount base.
16. Using a 1/4" x 1/4" x 2" key, attach the driver pulley to the motor shaft.
17. Using 3/8" hardware, bolt the belt shield mounting plate to the level auger belt shield bracket.
18. Using 1/2" hardware, attach the level auger belt shield bracket to the end plate.

19. Using 5/16" hardware, bolt the belt shield back plate to the belt shield mounting plate.
20. Assemble the pulleys and keys onto the shafts and tighten the set screws on the pulleys.
21. Pivot the motor mount to install the belt.
22. Adjust the 3/4" rods as needed for a proper belt fit.
23. Attach the belt shield with 5/16" WN.

Figure 31. Belt Shield Assembly



24. Check the completed assembly and make sure all bolts are tight and that the belt shield and auger shields are secure.

Roof with Gravity Fill

Note

- In all instances, use 1/4" x 3/4" HB, FW, and WL.
- Middle panel assemblies already have the inner splice plates assembled.

For 16' dryers:

1. The top section is already pre-assembled.
2. For 16' dryers, this section is all that is used; add the assembly to the upper-most tier / roof base section.

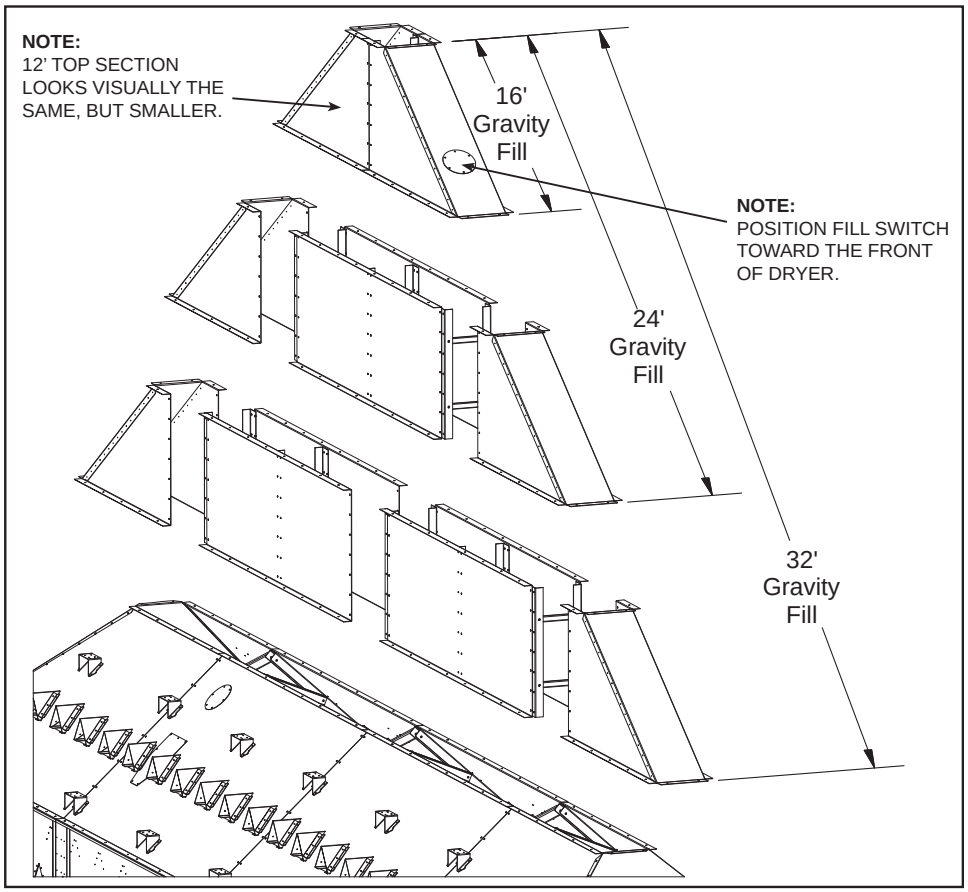
For 24' dryers:

1. Bolt one middle panel assembly and two corner assemblies together. and add the top-most pre-assembled 16' section. Add the assembly to the upper-most tier / roof base section.
2. Add the top-most pre-assembled 16' section.
3. Add the assembly to the upper-most tier / roof base section.

For 32' dryers:

1. Bolt two middle panel assemblies and two corner assemblies together.
2. Atop that, add an assembled 24' dryer assembly.
3. Finish with the top-most pre-assembled 16' section.
4. Add the assembly to the upper-most tier / roof base section.

Figure 32. Roof with Gravity Fill — 16', 24' or 32'



4.5.4 Catwalk and Safety Cage Assembly

Note

Catwalk systems are only used on models with closed roofs. If the system is NOT either a Roof with Gravity Fill system, or a Roof with Level Auger system, skip this section.

⚠ WARNING Do all catwalk and safety cage assembly at ground level.

- The main catwalk parts required per dryer length are outlined in the following table.
- For ease of assembly, note how the various dryer lengths have sections of catwalk making up the required length along the topside of the dryer.

Table 8. Catwalk Parts (Quantity per Dryer Length)

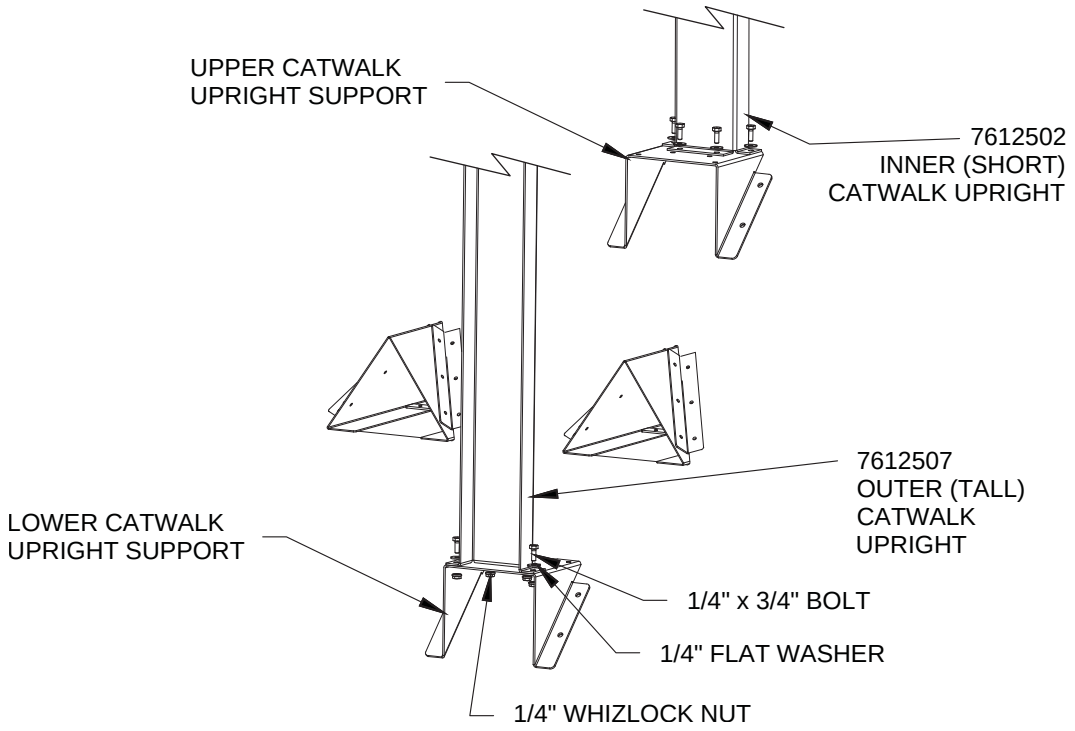
PART NUMBER	PART DESCRIPTION	16' DRYER	24' DRYER	32' DRYER
7612502	INNER (SHORT) UPRIGHT	2	4	6
7612507	OUTER (TALL) UPRIGHT	2	4	6
7712538	TOEBOARD - FRONT RIGHT 106"	1	1	1
7712536	TOEBOARD - FRONT LEFT 106"	1	1	1
7712355	TOEBOARD - MIDDLE 96"	N/A	2	4
7612973	TOEBOARD - END WITH HINGES	1	1	1
7712566	FLOOR PANEL - 103"	N/A	1	1
7712378	FLOOR PANEL - 96"	N/A	N/A	1
7612986	FLOOR PANEL - 87.96"	1	N/A	N/A
7612974	FLOOR PANEL - 80.72"	N/A	1	1
7712569	FLOOR SPLICE / SUPPORTS	1	2	3
7712573	FLOOR SUPPORTS	3	5	7
7612976	ACCESS CROSS BRACE	1	1	1
035369P	HINGE - 3" X 3"	2	2	2
7612975	PLATFORM ACCESS DOOR	1	1	1
F118072	HANDLE	1	1	1
7712895	LADDER SUPPORT BEAM	1	1	1
7712893	LADDER SUPPORT UPRIGHTS	2	2	2
7712894	LADDER SUPPORT BRACE	2	2	2
7712568	HANDRAIL LOWER FRONT 106"	2	2	2
7712567	HANDRAIL UPPER FRONT 106"	2	2	2
7712533	HANDRAIL LOWER MIDDLE 96"	N/A	2	4
7712394	HANDRAIL UPPER MIDDLE 96"	N/A	2	4
7712576	HANDRAIL CROSS BRACE	2	2	2
080085	LADDER EXTENSION RAIL WALKTHRU	2	2	2
7712583	HANDRAIL DIAG BRACE - END	2	2	2
7612510	HANDRAIL SPLICE	N/A	2	4
7712584	HANDRAIL DIAG BRACE - SIDE MID	N/A	4	8
080083	LADDER CONNECTION PLATES	2	2	2
7712587	HANDRAIL DIAG BRACE - SIDE FRONT	N/A	4	4

Note

Upright supports are factory mounted to the roof side panel.

1. Using 1/4" hardware, assemble 7612502 inner catwalk uprights to the upper supports.
2. Using 1/4" hardware, assemble 7612507 outer catwalk uprights to the lower supports.

Figure 33. Assemble Uprights to Upright Supports

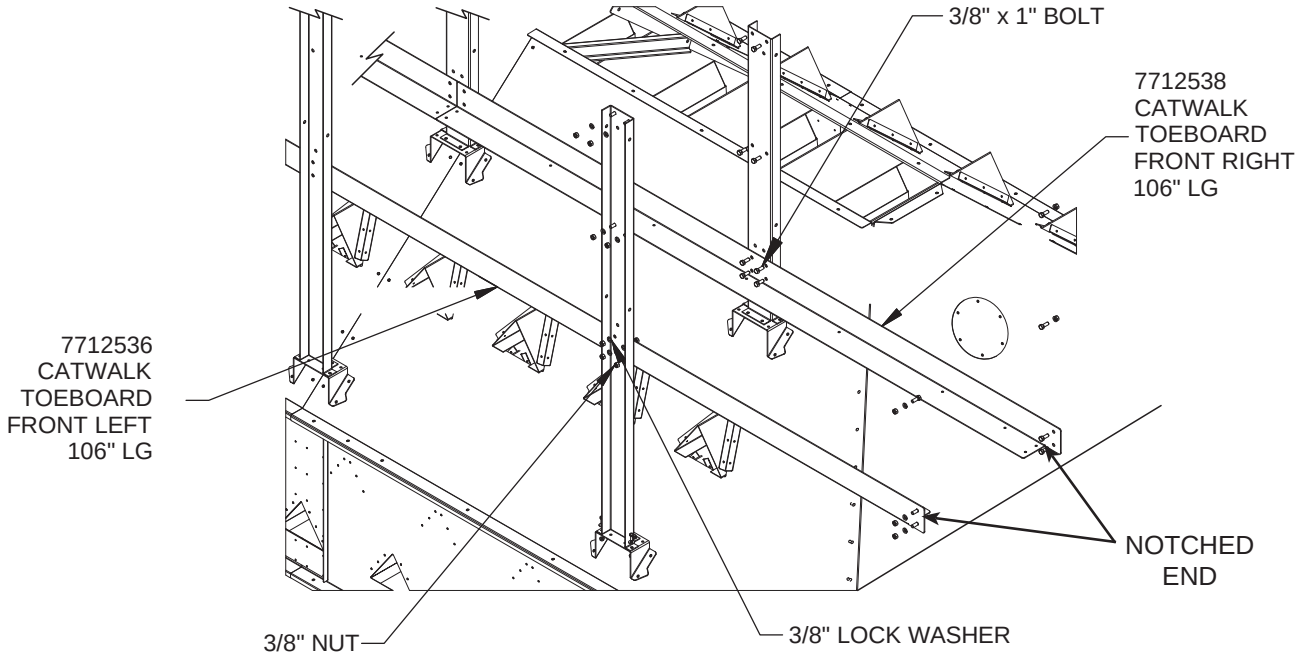


Note

Position notched ends of these toeboards TOWARD the end of dryer where ladder is.

3. Using 3/8" hardware, assemble 7712536 front left 106" toeboard and 7712538 front right 106" toeboards to the uprights.

Figure 34. Assemble front Toeboards to Uprights



4. Use 3/8" hardware to complete toeboard installation.

5. For 16' dryers without a catwalk extension, install the 7612973 end toeboard.
6. For all other dryers, complete assembly of the remaining side toeboards as shown, then install the 7612973 end toeboard.

Figure 35. Toeboard and Floorboard Layout

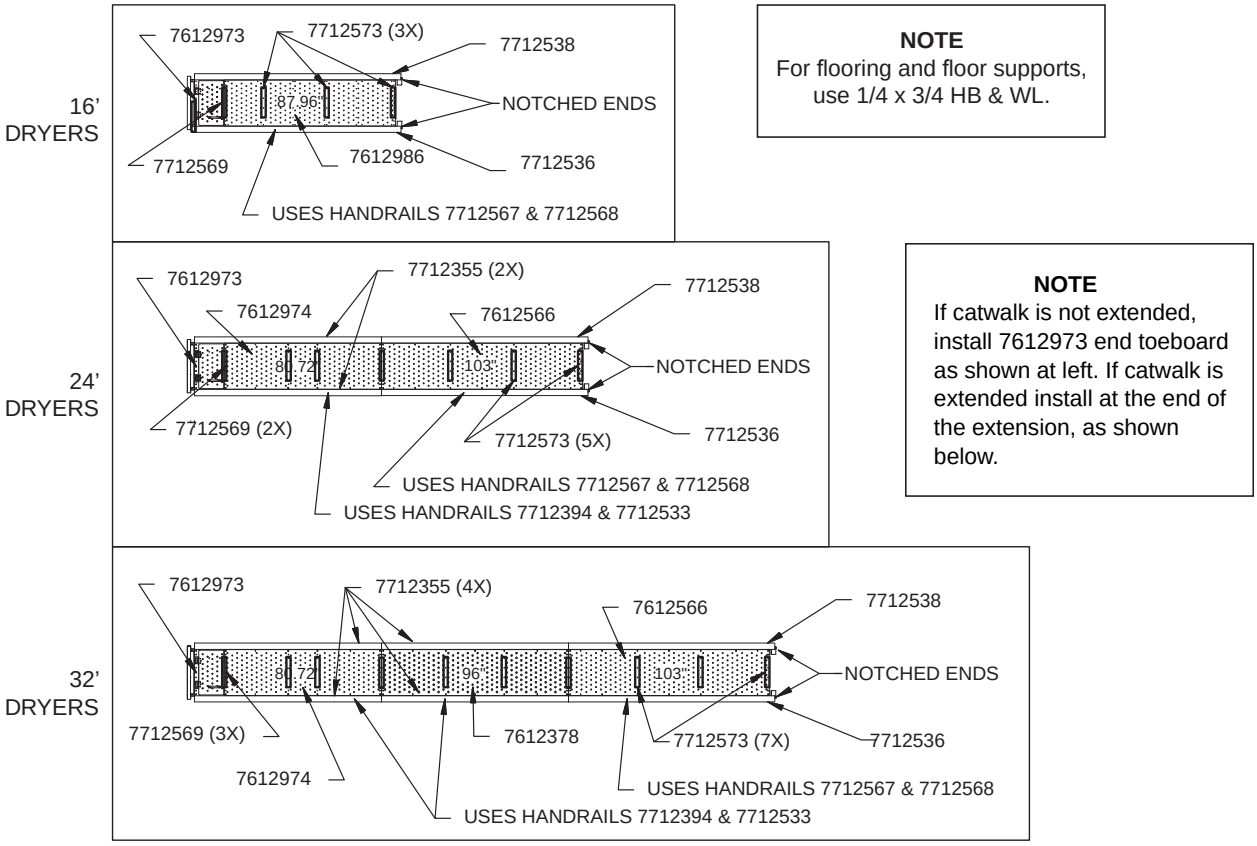
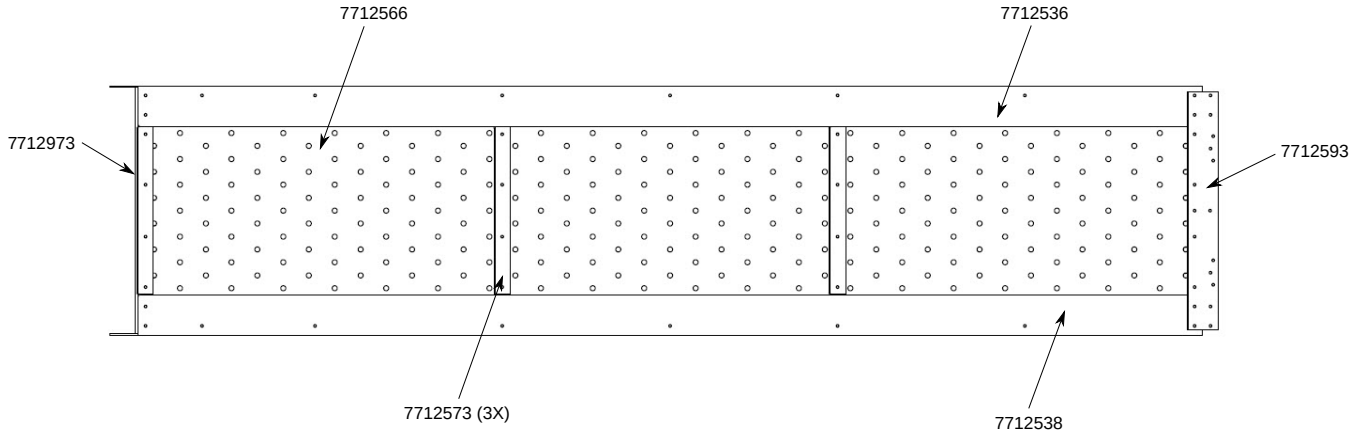
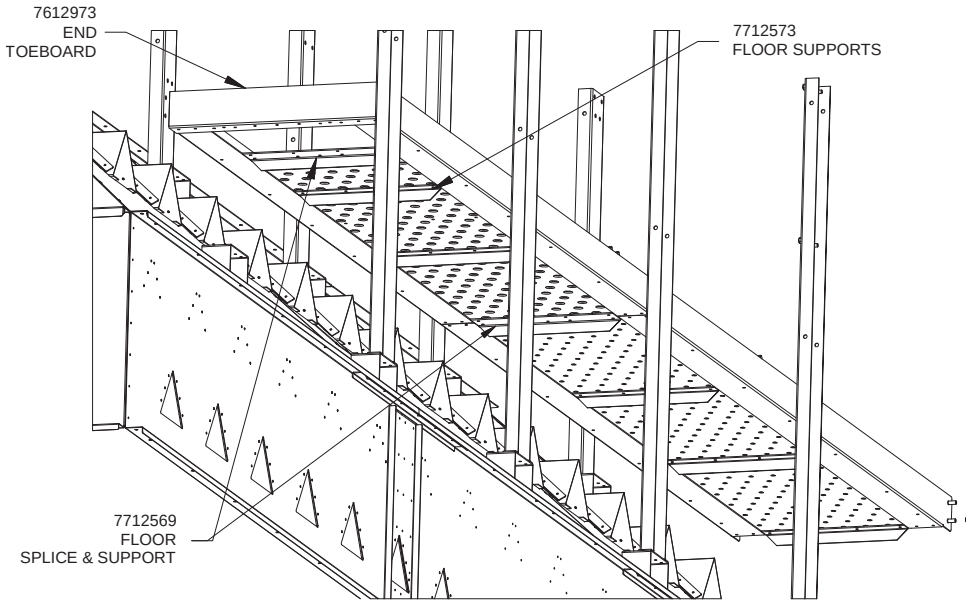


Figure 36. Extension Toeboards and Floorboards



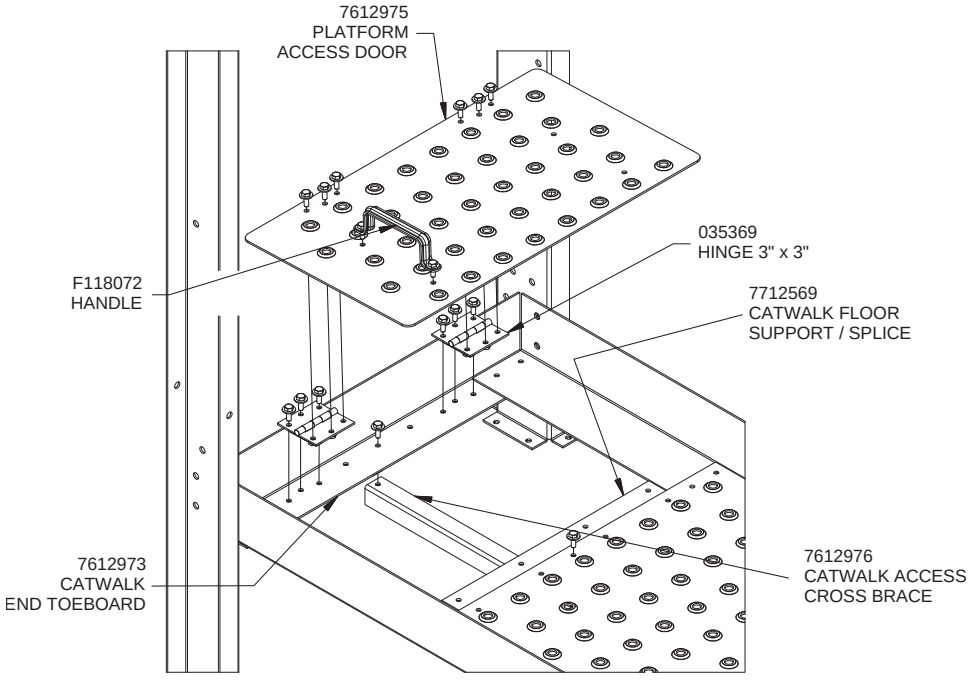
7. Using 1/4" hardware, assemble any remaining floor panels required.
8. Assemble 7712569 splice supports at edge where hinged door shuts & each floor panel joint.
9. Assemble 7712573 supports - one at the ladder end of front floor panel & two at mid span.

Figure 37. Assemble Floor Supports and Splice Supports



10. Bolt the 7612976 catwalk access cross brace between the center of the 7712569 floor splice support and either the 7612973 end toeboard for non-extended catwalks or the 7712593 floor support for extended catwalks.
11. Bolt the F118072 handle and 035369 hinges to the 7612975 platform access door.
12. Bolt the 7612976 catwalk access cross brace between the center of the 7712569 floor splice support and either the 7612973 end toeboard for non-extended catwalks or the 7712593 floor support for extended catwalks.

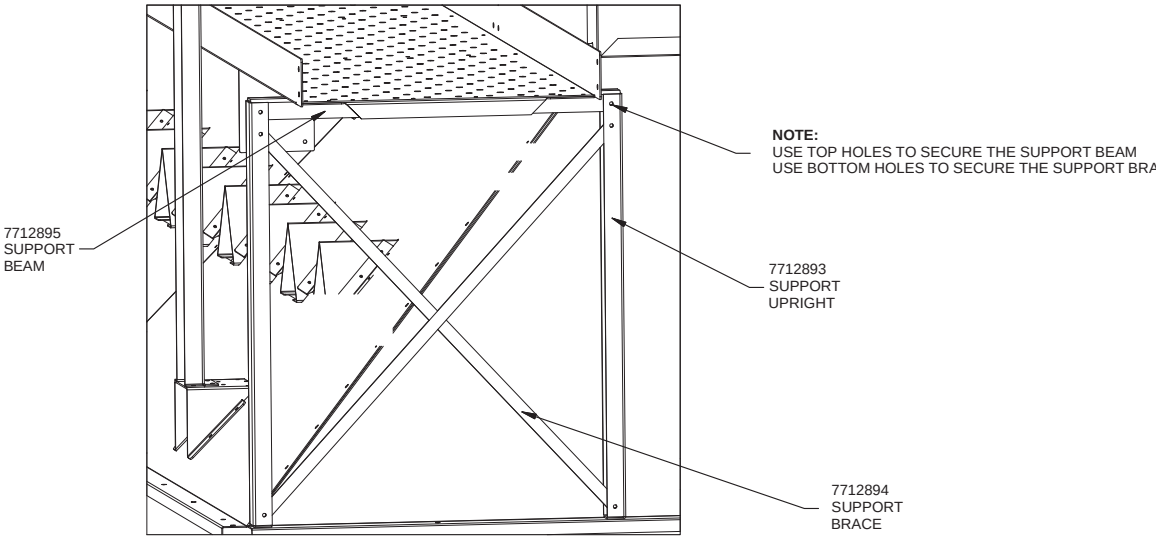
Figure 38. Assemble Floor Panel Access Door System



13. Use 1/4" x 3/4 HB, FW, and WL hardware.
14. Bolt the 7712895 ladder support beam to the toeboards and the front floor section.

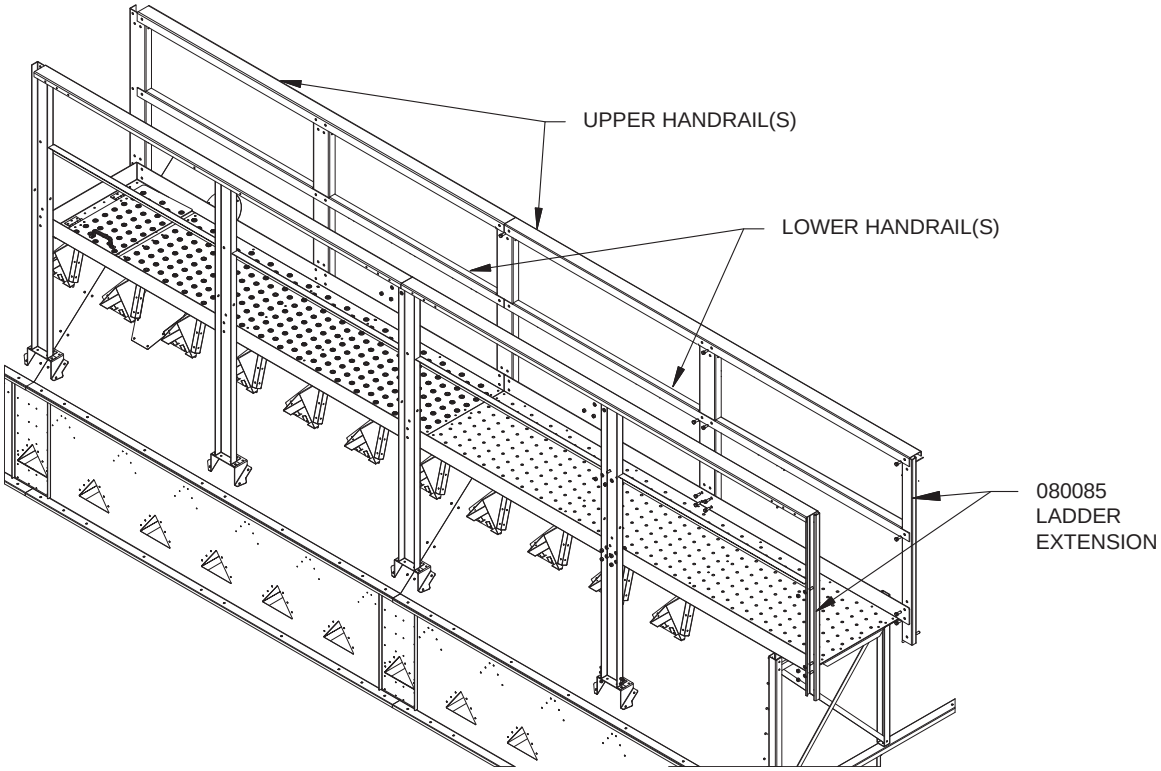
15. Bolt the 7712893 ladder support uprights to the support beam. Be sure to use the TOP holes
16. Bolt the 7712894 support braces to the support uprights. Use the holes below the support beam.
17. Located directly beneath the ladder support legs, remove the two bolts from the lip of the top tier / roof edge.
18. Position the support legs so that the base hole lines up with where the two bolts were removed and re-install the two bolts to secure the bases of the support uprights.

Figure 39. Assemble the Ladder Support System



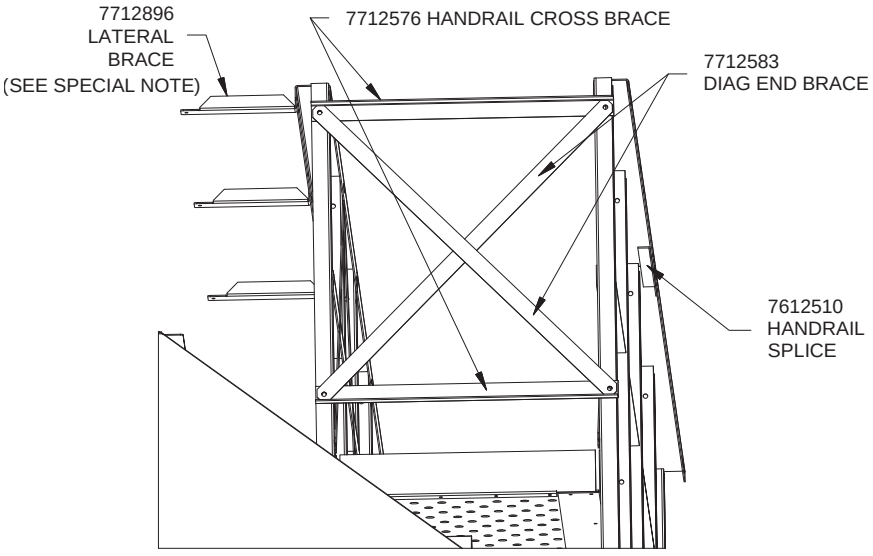
19. Use 3/8" x 1" HB, FW, & WL hardware.
20. For extended catwalks, repeat Step 14 – Step 19 on the opposite end of the catwalk.
21. Bolt the upper handrails to the inner & outer upright supports.
22. Bolt the lower handrails to the inner & outer upright supports.
23. Bolt the 080085 ladder extension uprights to the toeboards and handrails. For extended catwalks, repeat on the opposite end.

Figure 40. Assemble Handrails and Ladder Extensions



24. Using 3/8" hardware, bolt the 7712576 handrail cross braces and the 7712583 diagonal end braces to the end inner & outer uprights.
25. Using 1/4" hardware, bolt the 7612510 handrail splice on the underside of top railings - where any two top handrails butt up.
26. FOR GRAVITY FILL ROOF STYLES ONLY - Using 1/4" x 3/4 HB & WL, install 7712896 lateral braces between the inner top handrail and re-use existing bolts in the gravity fill overlapped lips.

Figure 41. Assemble End Rails

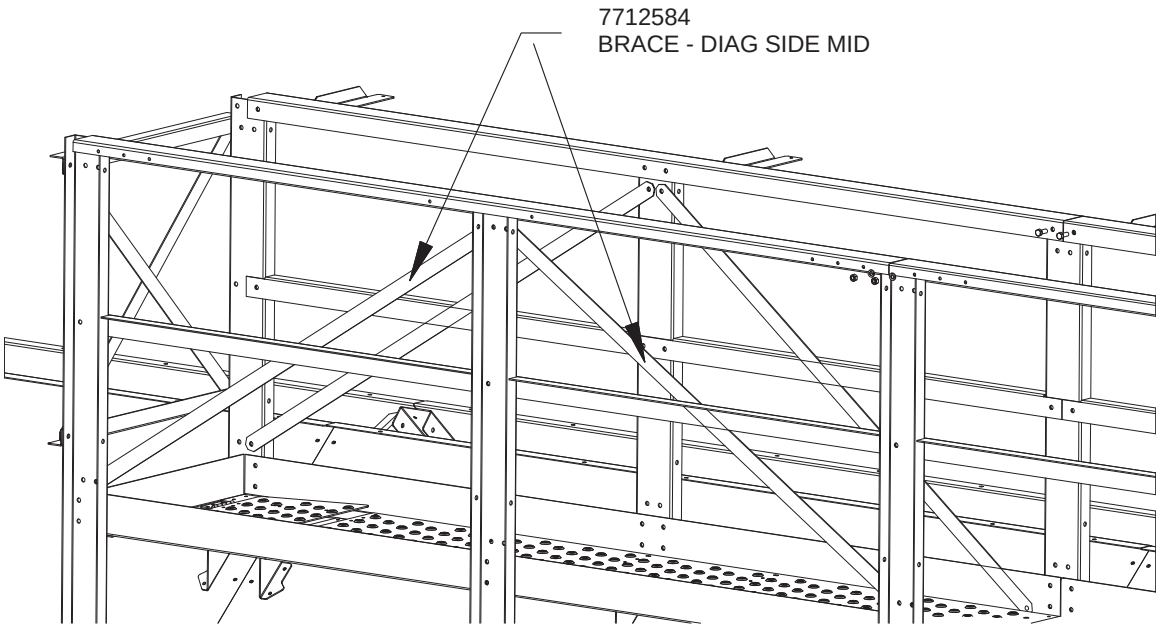


Note

The diagonal side braces go ONLY on the 96" long sections. On 24' dryers, they are at the end 96" section opposite the ladder end. On 32' dryers they are at the middle 96" section. Diagonal side braces (7712587) go on the 103" long beginning sections on all dryers and on catwalk extension sections.

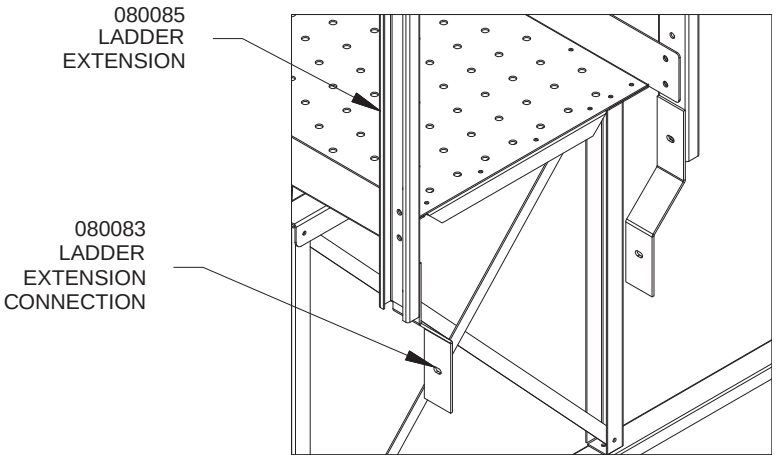
27. Using 3/8" hardware, bolt the 7712584 diagonal side braces to the inner & outer uprights.

Figure 42. Assemble Diagonal Side Braces (24' dryer shown)



28. Using 3/8" hardware, bolt the 080085 ladder extensions to the bottom of the 080083 ladder connection plates. For extended catwalks, repeat at the opposite end if a second ladder is to be installed on the dryer, opposite the standard ladder.
29. These connection plates will attach to the top of the ladder system which is installed using 088028 ladder clips with 3/8" hardware after the topside is installed.

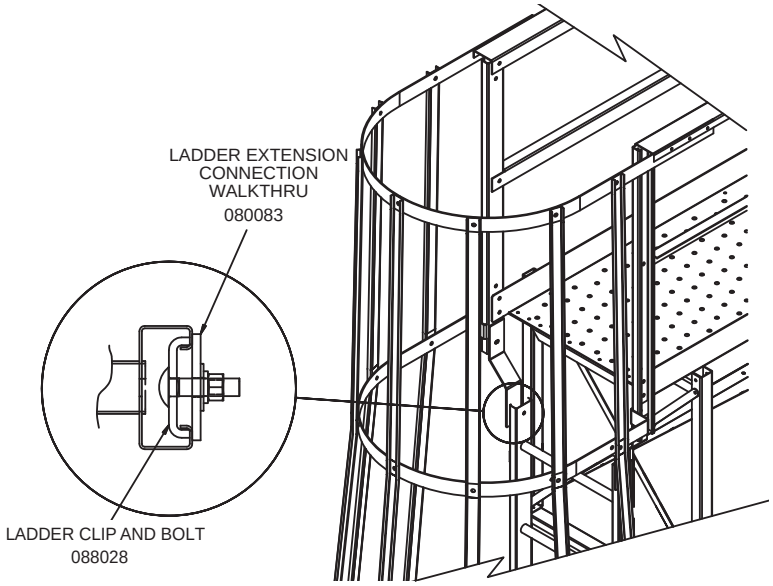
Figure 43. Assemble Ladder Extension Connection Plates



30. Once the catwalk is complete, install the upper ladder. Note that the vertical position may need to be adjusted somewhat when the roof assembly is stacked.

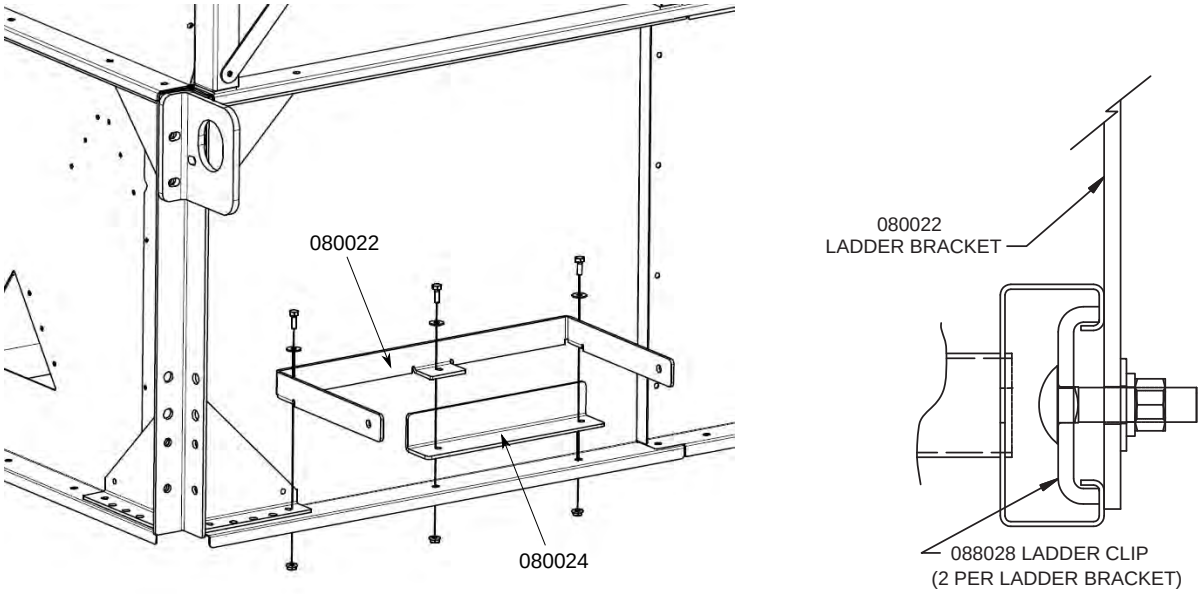
31. The top end of the ladder connects to the 080083 ladder connection plates at the end of the catwalk. Note that the ladder connection plates mount outside the ladder rails.

Figure 44. Finish Ladder Connection



32. Secure the ladder to the tiers of the roof section using one (4' ladders) or two (6' and 8' ladders) 080022 ladder brackets. When a ladder bracket is installed at the bottom of the roof assembly, a 080024 spacer must be used under the 080022 bracket. This spacer is not needed when installing the brackets in other locations. Once all required brackets are in place, secure the ladder to the brackets with the 088028 ladder clips.

Figure 45. Bolt on Ladder

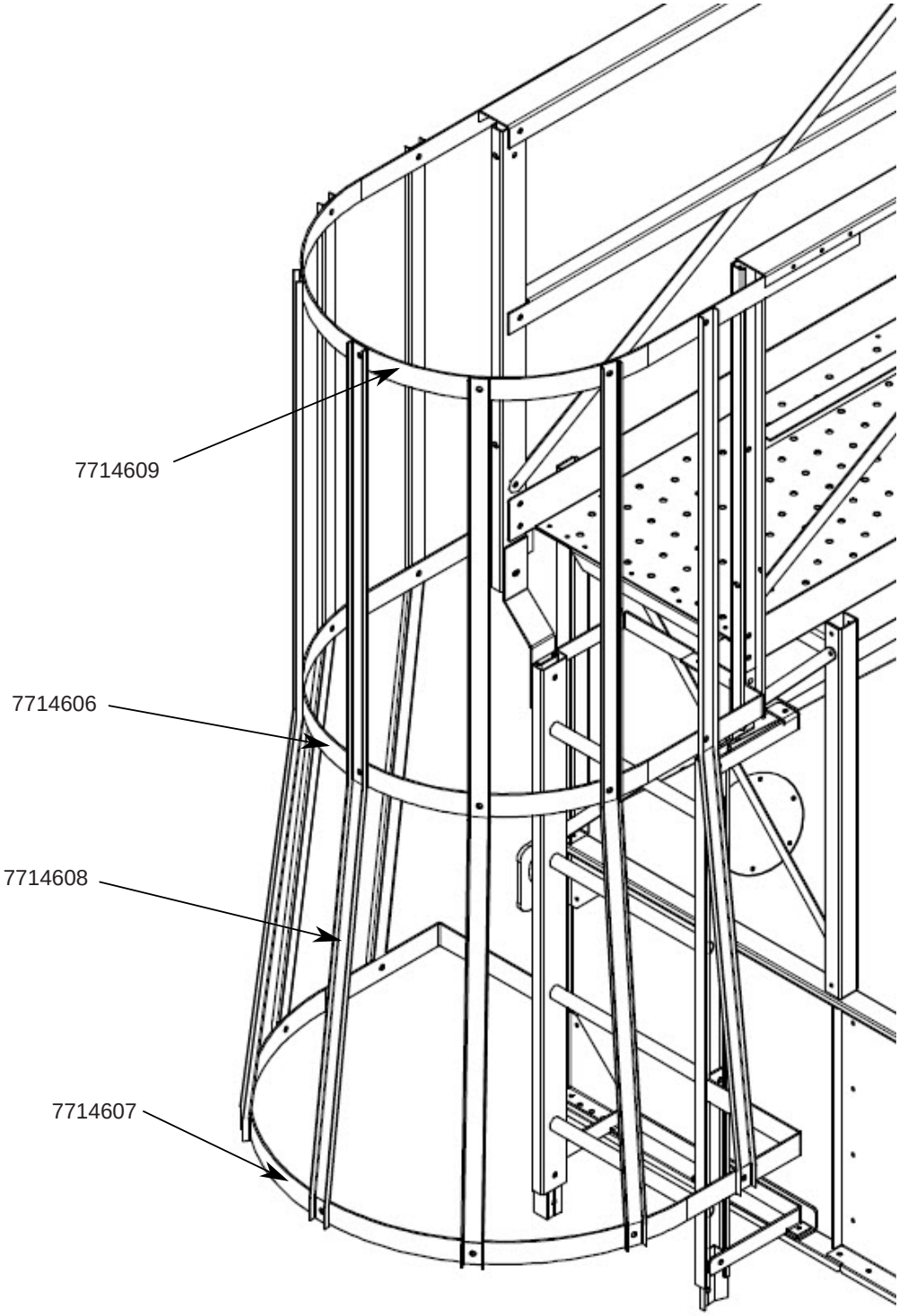


4.5.5 Safety Cage Assembly

Dryers with Roofs and Catwalk System

Assemble safety cage as shown in Figure 46. Use 7714611 box of hardware.

Figure 46. 7714610 Cage for Roofs with Catwalk



4.6. Full Roof Catwalk Assembly

Note

- Throughout this catwalk assembly manual section the 24’ catwalk is shown in the assembly drawings as an example, however each catwalk size follows the same general assembly methods.
- 16’ and 32’ catwalk assembly installers: Keep in mind the 16’ and 32’ catwalk assemblies will have differences in appearance and sometimes will use different parts.
- Reference the parts tables following assembly drawings for the parts needed in each step.

4.6.1 Catwalk Assembly Preparation

Required Tools:
Impact tool with socket heads: 3/8” (1/4” flanged bolts), 7/16” (1/4” nut) and 9/16” (3/8” hardware)
Wrenches: 3/8”, 7/16”, and 9/16”
Punch

4.6.2 Catwalk Model Layouts / Overview

Figure 47. 16’ Model

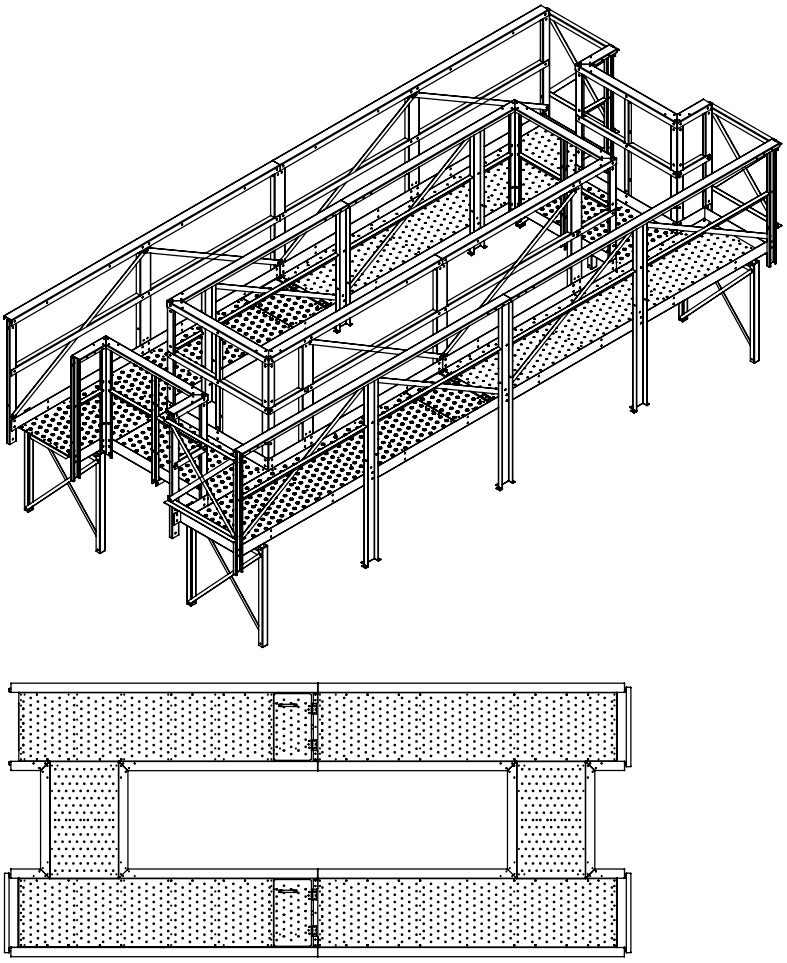


Figure 48. 24’ Model

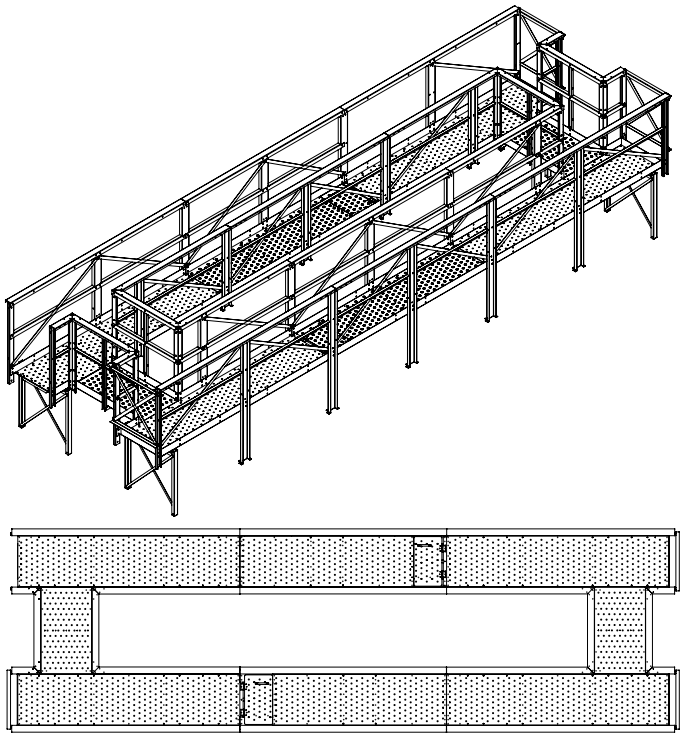
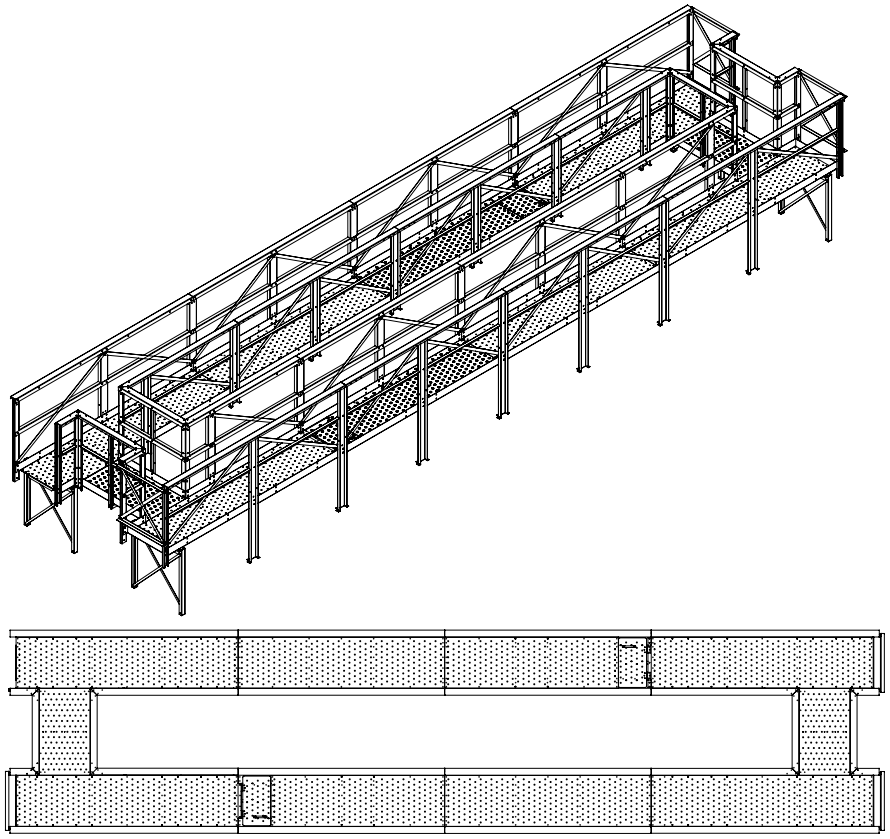


Figure 49. 32’ Model



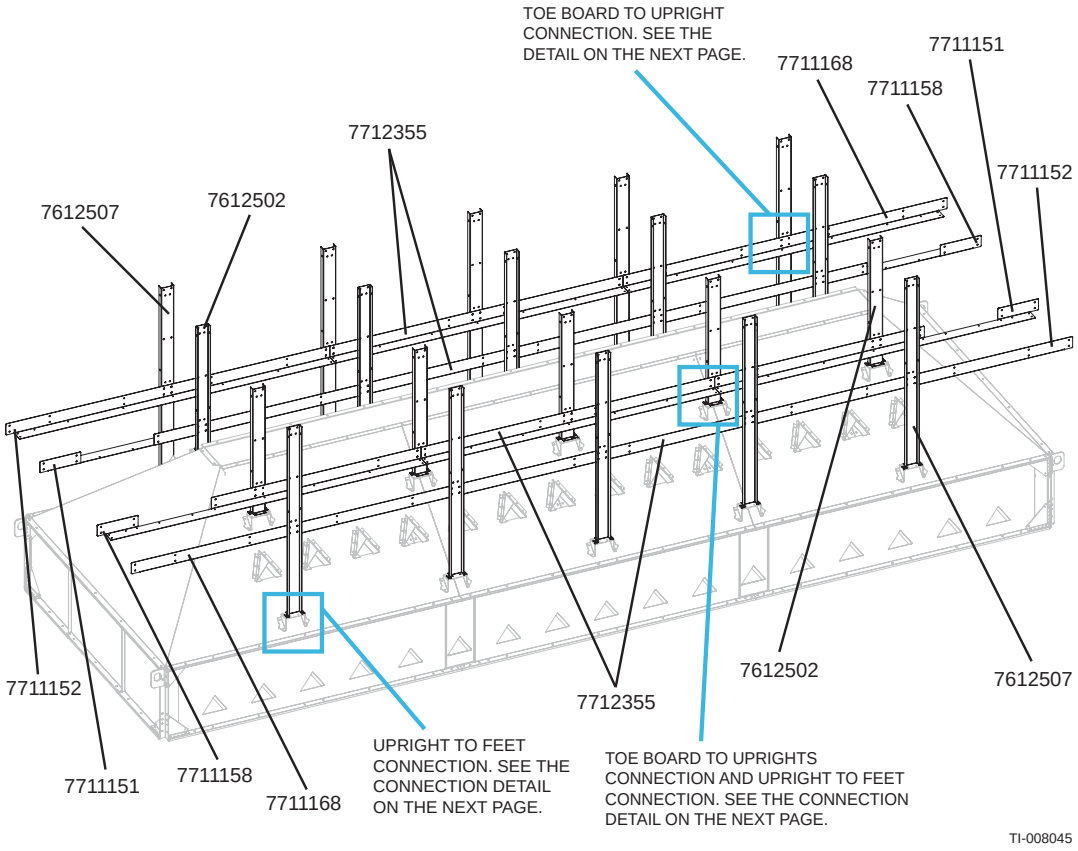
4.6.3 Installing Catwalk Leg Uprights and Toe Boards

Note

For 16’ catwalks, if a pre-cleaner is installed on this dryer, the 16’ short leg uprights in the middle differ from the standard 16’ leg uprights. Refer to the manualSection – Installing Short Blower Mount Leg Uprights on page 89 now and install these legs now to avoid duplicate work.

1. Install leg uprights to factory installed feet on both sides of the roof.
   - Use 1/4” x 3/4” flange bolts and 1/4” serrated flange nuts.
2. Install toe-boards to leg uprights.
   - Use 3/8” x 1” flange bolts, 3/8” serrated flange nuts, and 3/8” flat washers.

Figure 50. Installing the Catwalk Leg Uprights and Toe Boards



Part Number	Part Name	16’ Quantity	24’ Quantity	32’ Quantity
7612502	Inner Leg Upright	6	10	14
7612507	Outer Leg Upright	6	10	14
7711151	106” RH Crossover Entry Toe-Board	2	2	2
7711152	106” LH Front Toe-Board	2	2	2
7711158	106” LH Crossover Entry Toe-Board	2	2	2
7711168	106” RH Front Toe-Board	2	2	2
7712355	96” Middle Toe-Board	N/A	4	8

Figure 51. Install Leg Uprights to Factory Installed Feet

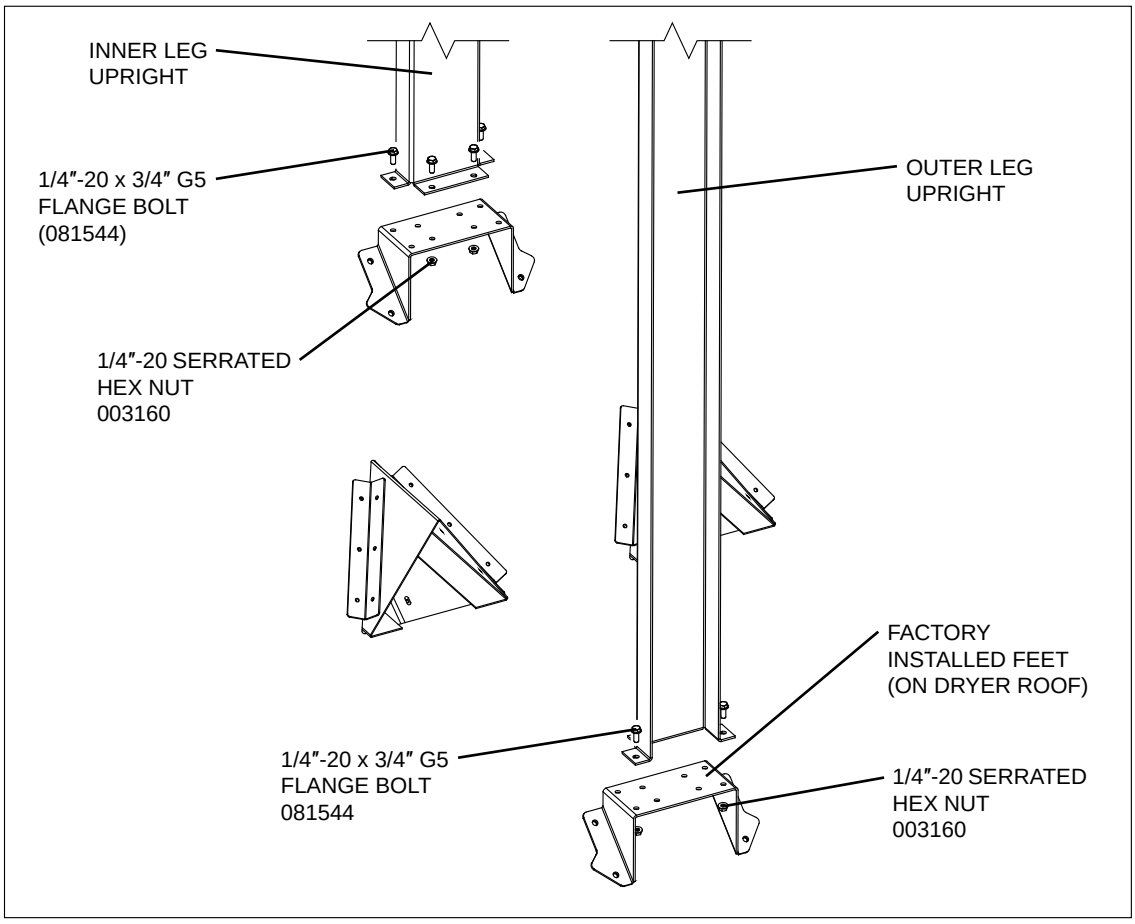
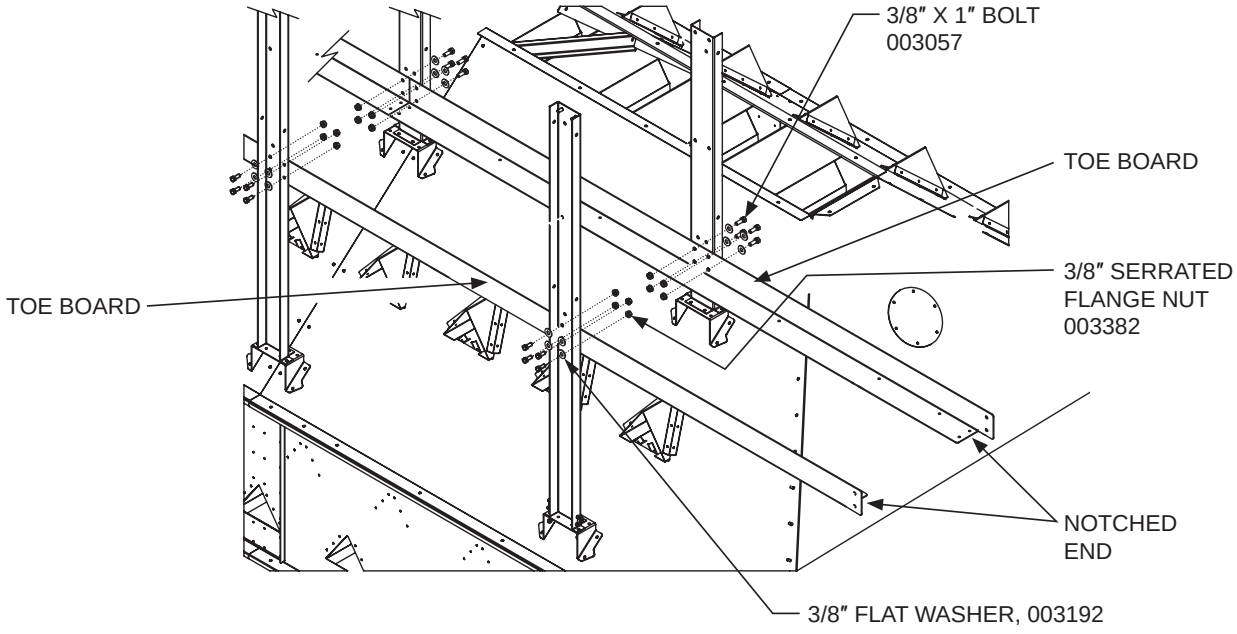


Figure 52. Install Toe Boards to Leg Uprights



4.6.4 Installing Walk Surfaces, Walk Surface Stiffeners, and Door Hinge Mounts

Note

Following are catwalk size-specific layout drawings showing the required locations for each of the following parts: walk surfaces, walk surface stiffeners, walk surface splice plates, and door hinge mounts.

During assembly, make certain to install each and every part shown in the appropriate layout drawing below in its correct location.

Figure 53. 16′ Catwalk Floor Structure Parts Required Layout, Top View

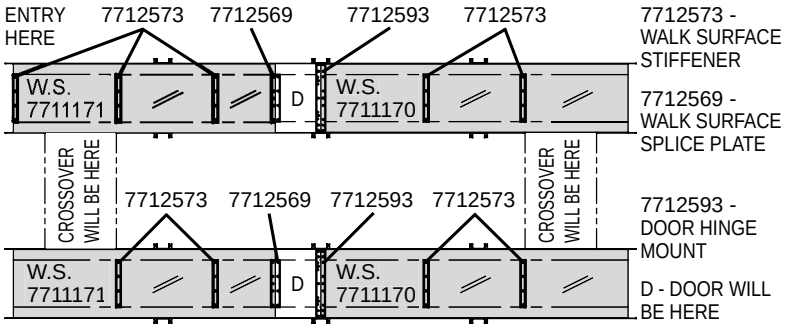


Figure 54. 24′ Catwalk Floor Structure Parts Required Layout, Top View

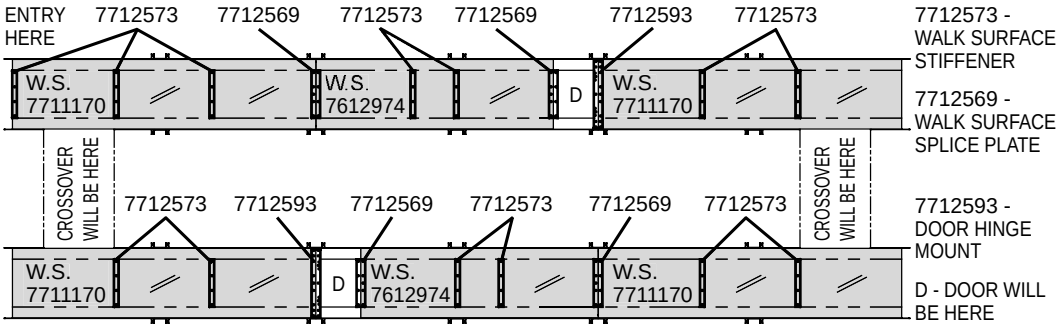
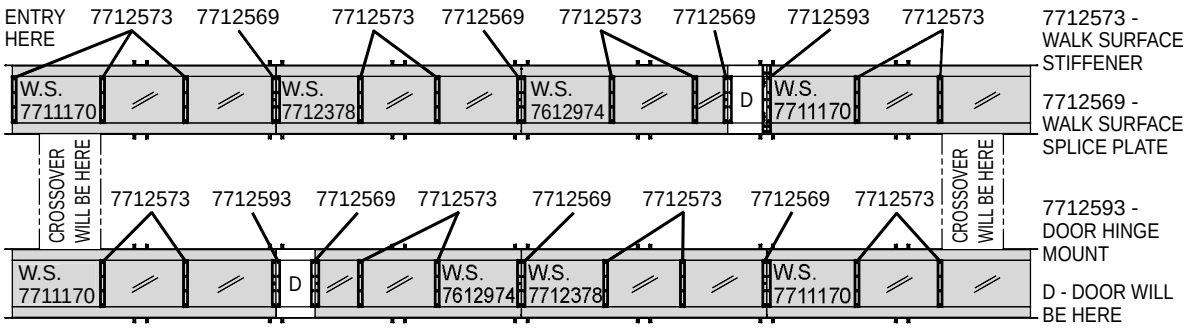


Figure 55. 32′ Catwalk Floor Structure Parts Required Layout, Top View



Place the walk surfaces onto the toe boards in the correct locations, but do not bolt them into place yet.

- Position walk surface gaps over the roof moisture sensor locations.

Note

80-3/4” walk surfaces (7612974) are shorter. Position these next to the moisture sensor mounting locations. See the moisture sensor identification detail below, at right.

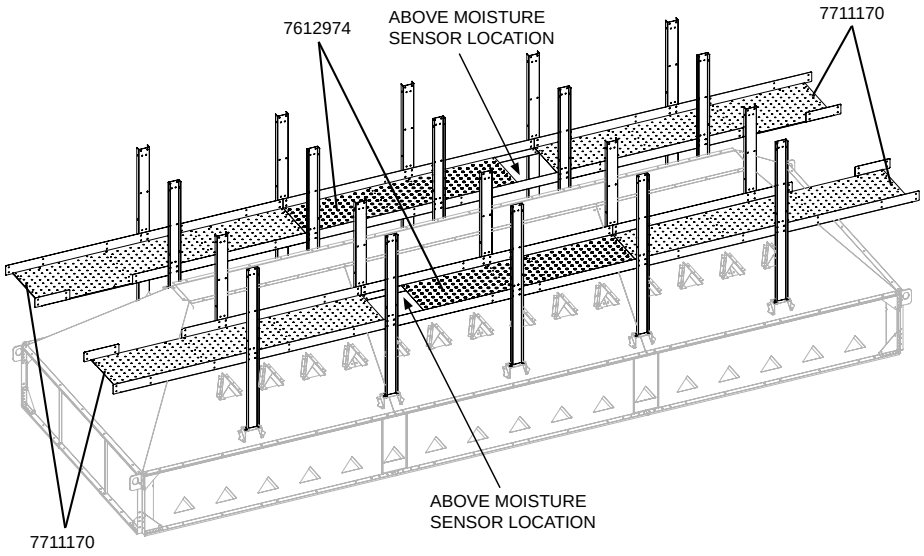
Note

Position each door opening over a moisture sensor cover. (See the following figure.)

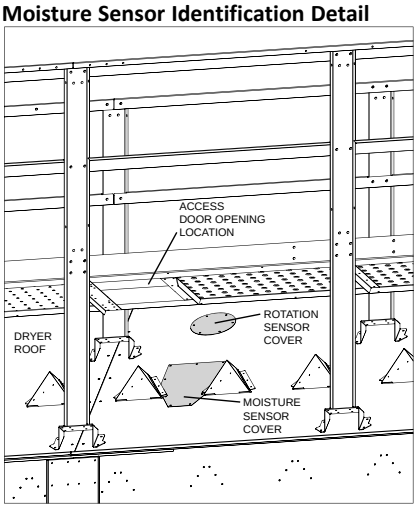
Note

Expect that moisture sensor openings are not positioned directly centered over moisture sensor locations; however, these openings are positioned close enough to the moisture sensor locations to allow moisture sensor access through the openings.

Table 9. Place Walk Surfaces in Correct Locations



Moisture Sensor Identification Detail



Part Number	Part Name	16’ Quantity	24’ Quantity	32’ Quantity
7612974	80-3/4” Walk Surface	N/A	2	2
7712378	96” Middle Walk Surface	N/A	N/A	2
7711170	103-3/16” Walk Surface	2	4	4
7711171	88” Walk Surface	2	N/A	N/A
7712569	Walk Surface Splice Plate	2	4	6
7712573	Walk Surface Stiffener	9	13	17

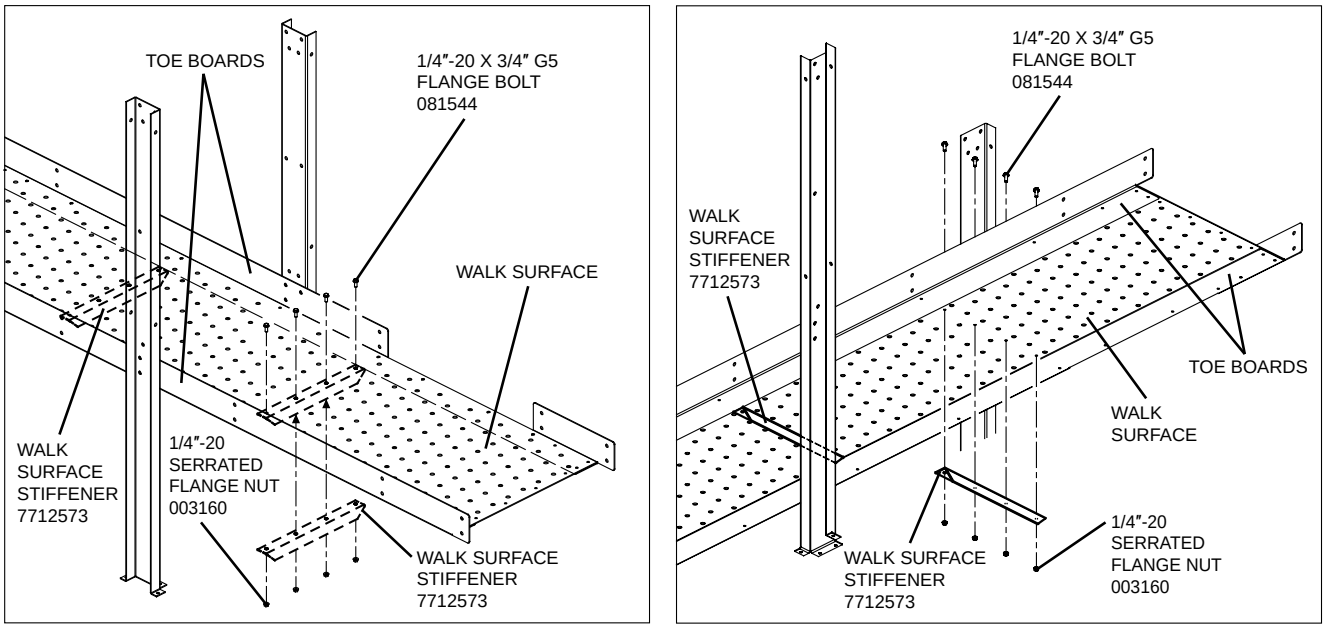
Install walk surface stiffeners (7712573) to undersides of walk surfaces.

- Use 1/4” flange head bolts and flange nuts.

  Note

  - It is necessary to eliminate the camber in the walk surfaces before bolting walk surfaces to toe boards.
  - In order to eliminate the camber in the walk surfaces, install walk surface stiffeners to walk surfaces before bolting walk surfaces to toe boards.

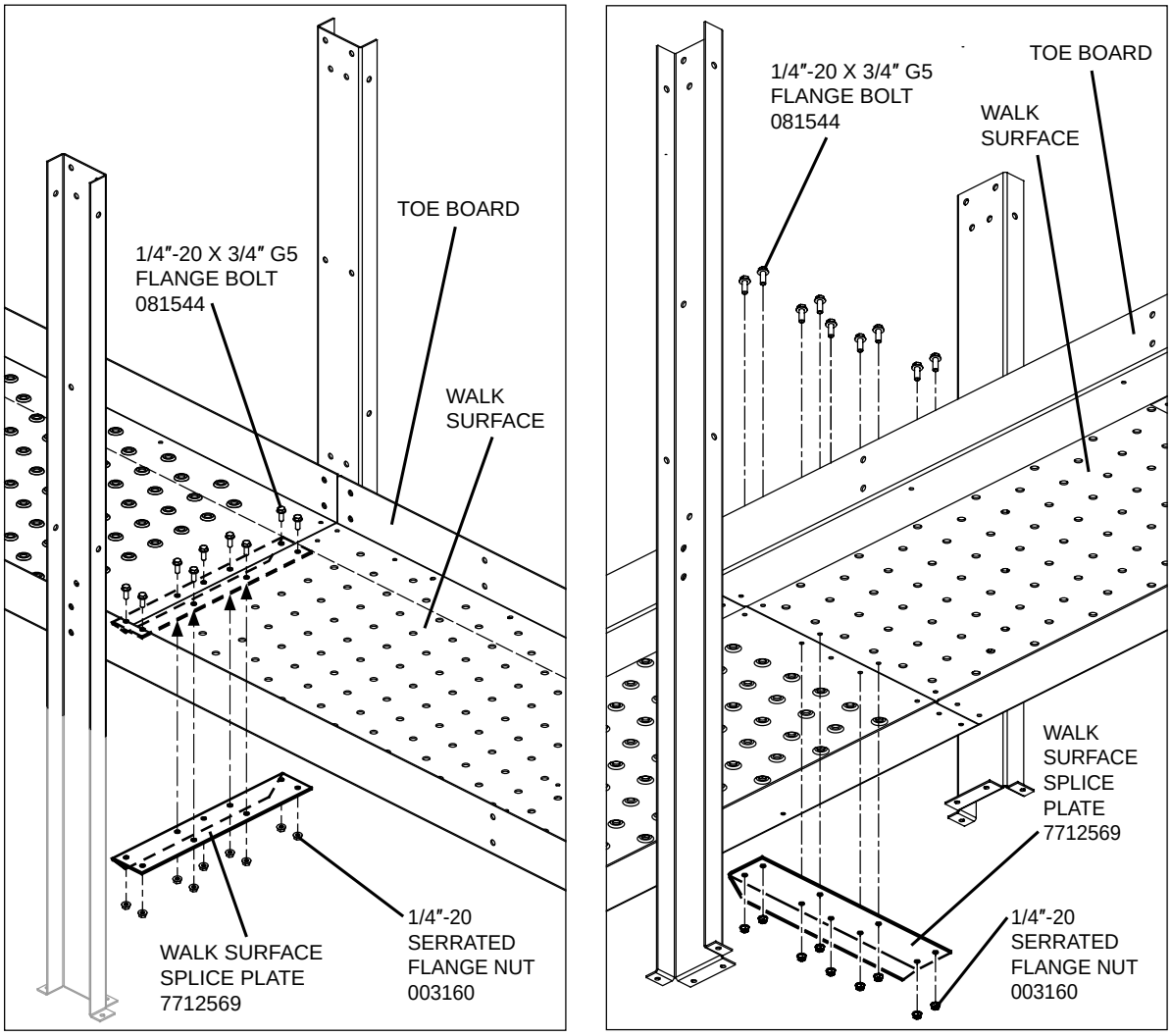
Figure 56. Installing Walk Surface Stiffeners



Install the walk surface splice plate (7712569) between walk surfaces, fastening it to both walk surfaces.

- Use 1/4” flange head bolts and flange nuts.

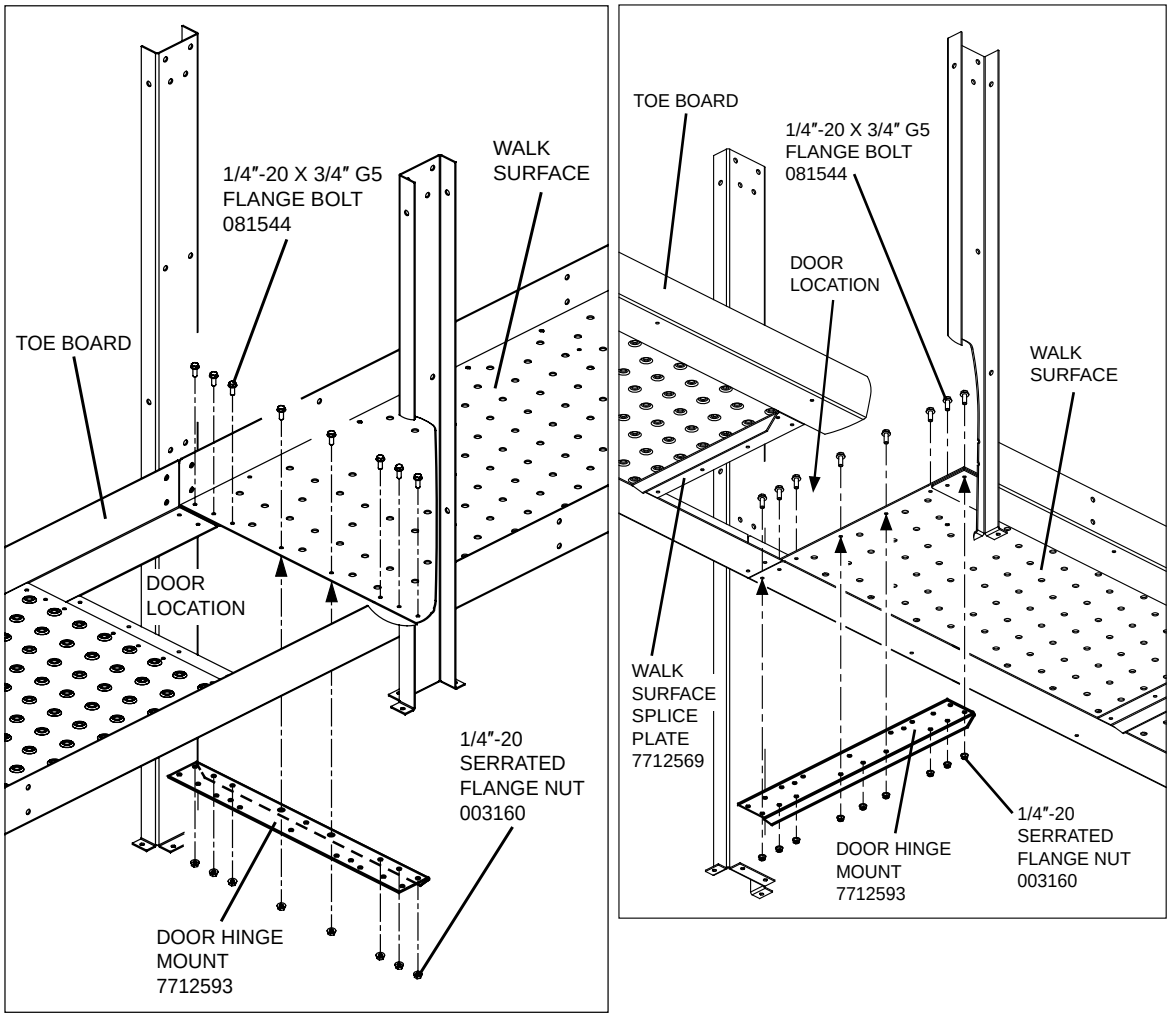
Figure 57. Installing Walk Surface Splice Plates



Install door hinge mounts (7712593) to the hinge side of each door opening, fastening each to its adjacent walk surface as shown.

- Use 1/4” flange head bolts and flange nuts.

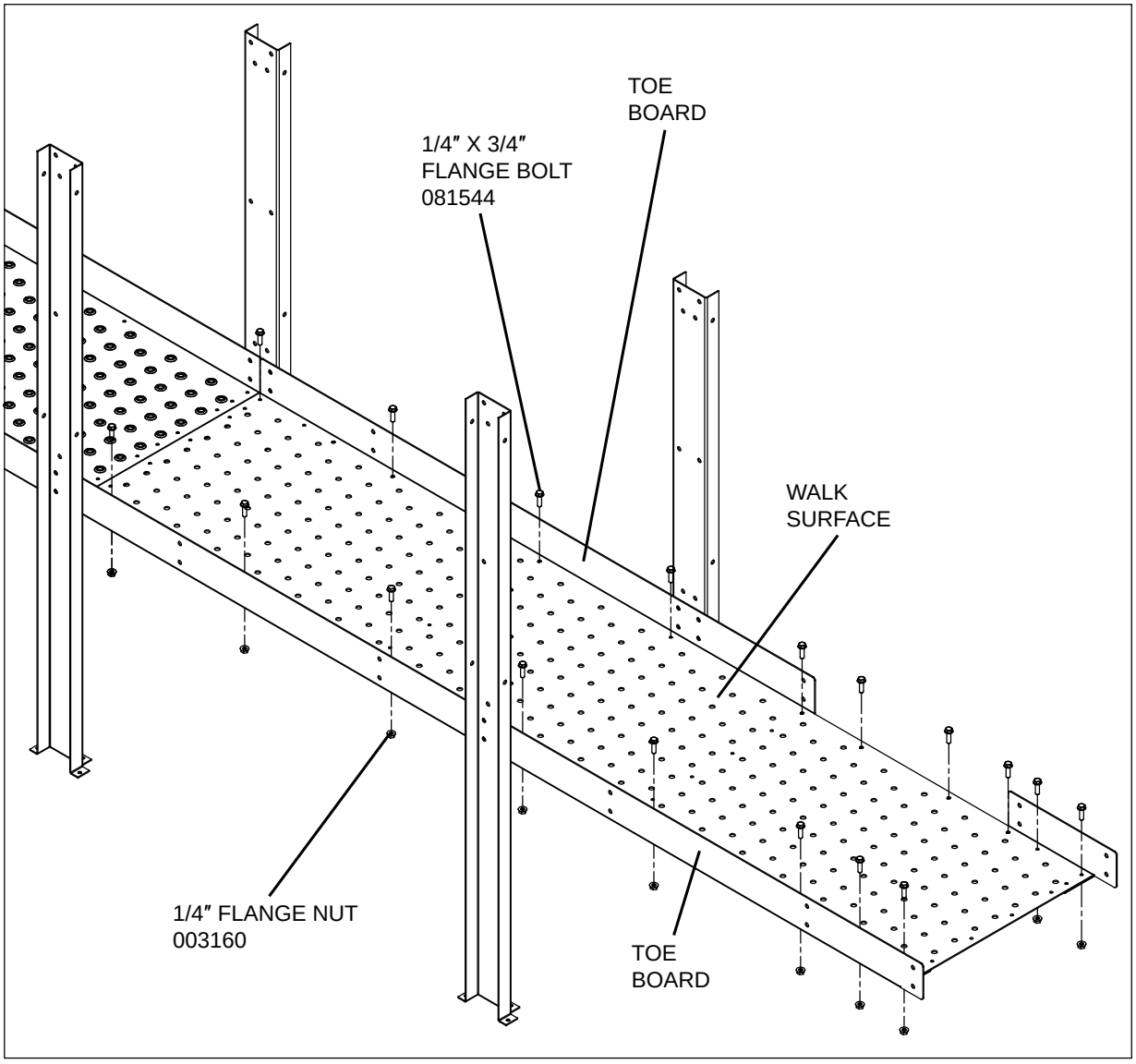
Figure 58. Installing Door Hinge Mounts



Fasten all walk surfaces to the toe boards.

- Use 1/4” flange-head bolts and flange nuts.

Figure 59. Fastening Walk Surfaces to Toe Boards

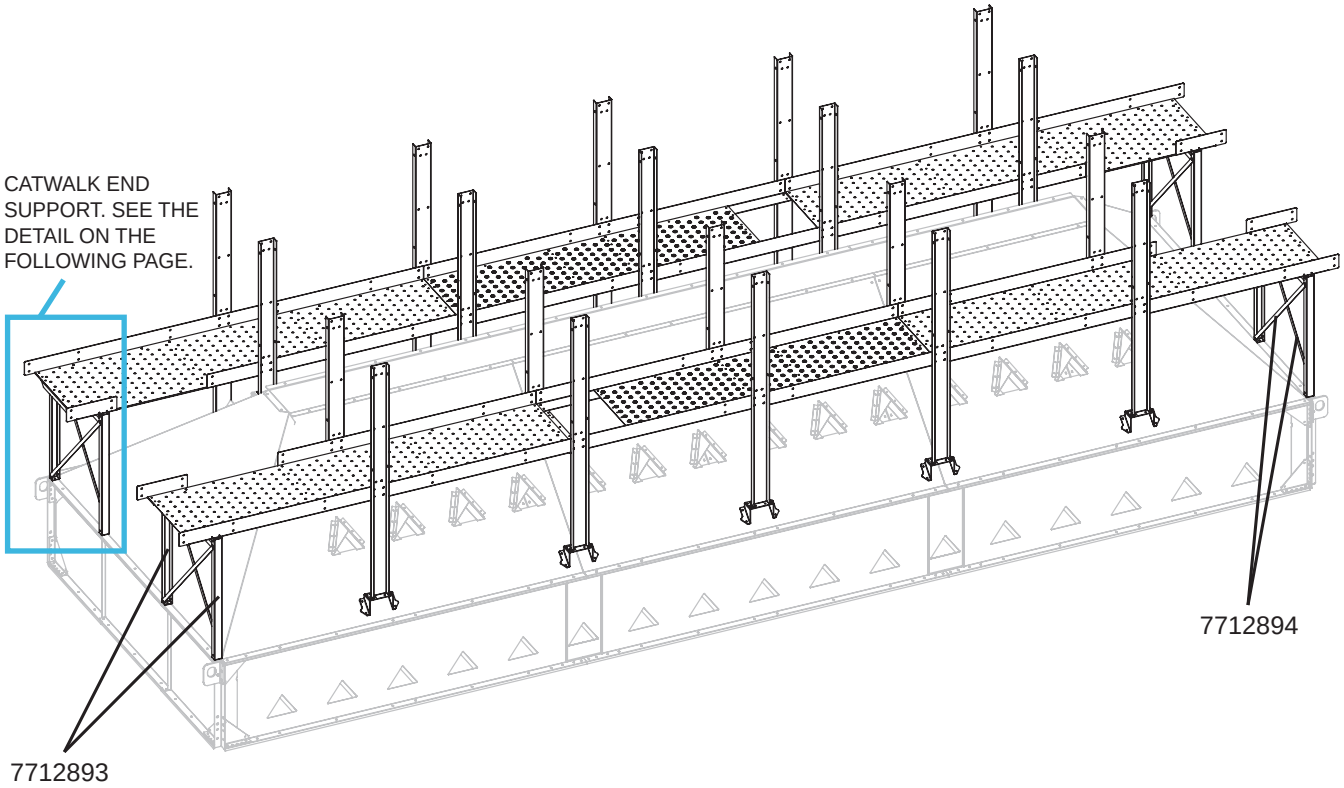


4.6.5 Installing Catwalk End Supports

Assemble and install catwalk end supports.

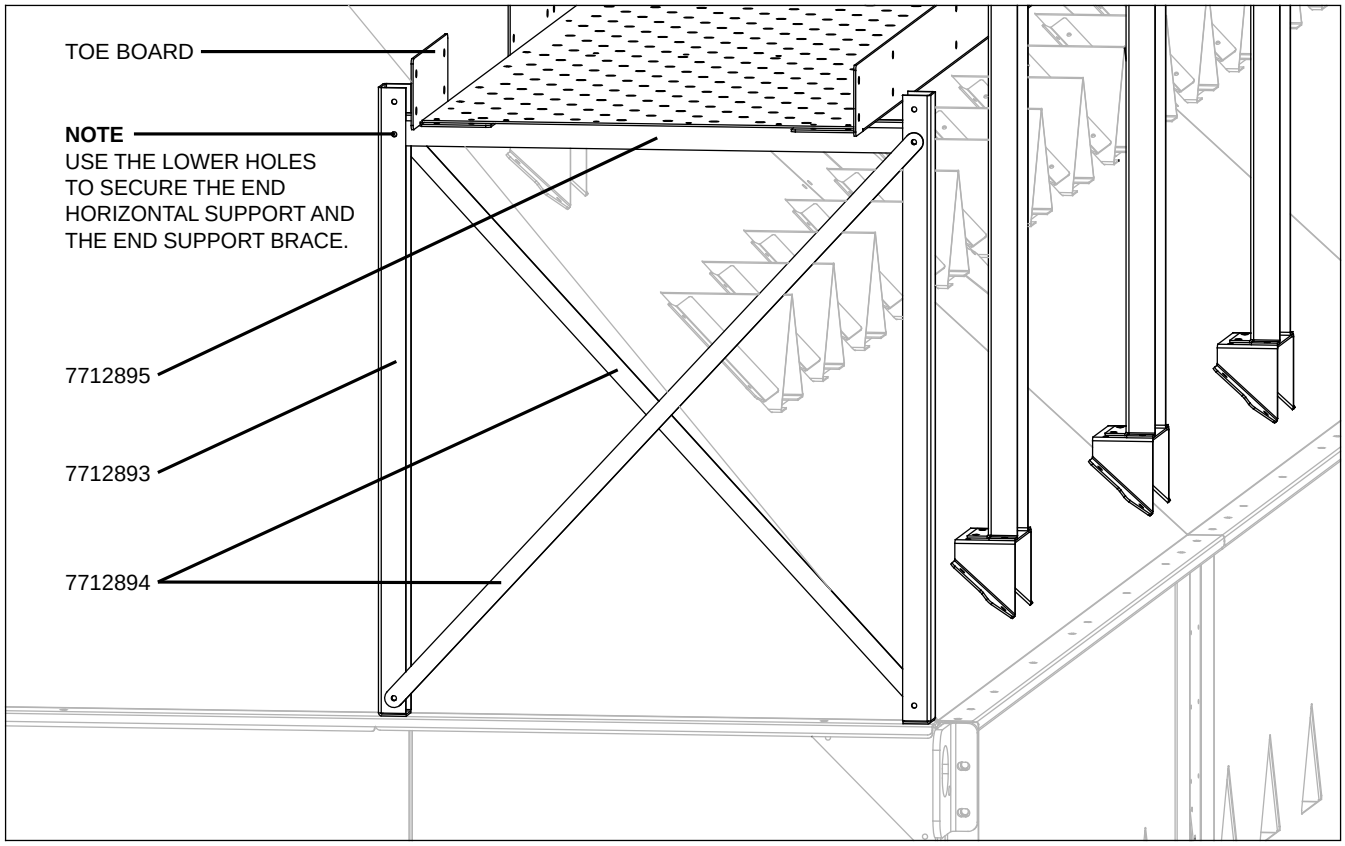
- Use 1/4” nuts and flange-head bolts.

Figure 60. Installing Catwalk End Supports



Part Number	Part Name	16’ Quantity	24’ Quantity	32’ Quantity
7712893	End Upright / Ladder Support Upright	8	8	8
7712894	End Support Brace	8	8	8
7712895	End Horizontal Support (shown on the next page)	4	4	4

Figure 61. Assemble and Install Catwalk End Supports, Detail View



4.6.6 Installing Access Doors

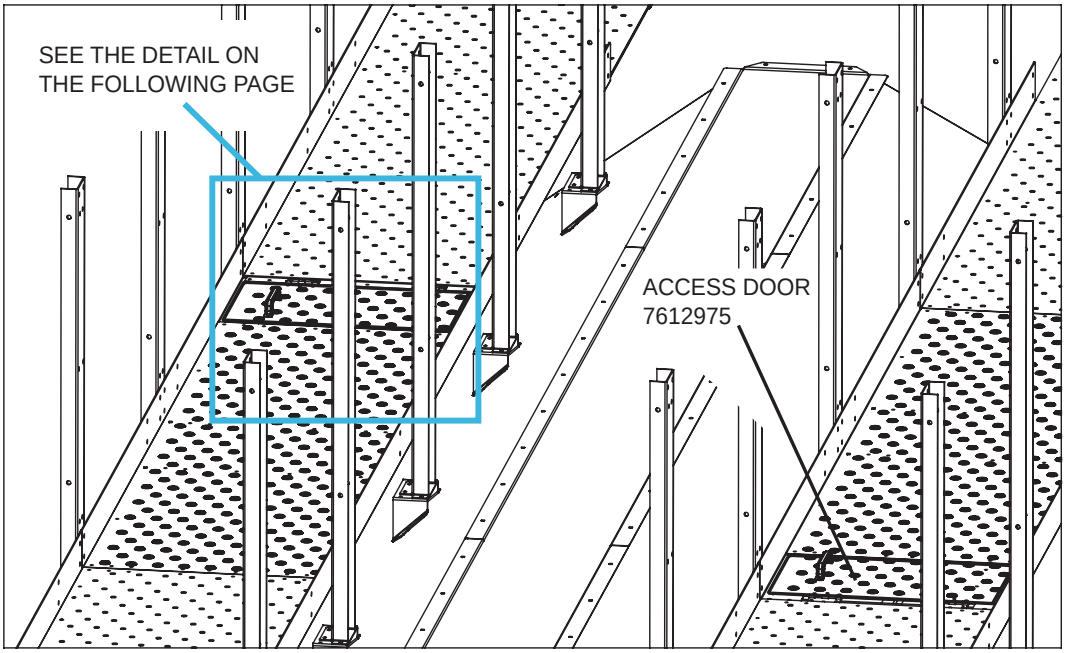
Install access doors above both moisture sensor openings.

- Use 1/4” nuts and flange-head bolts.

Note

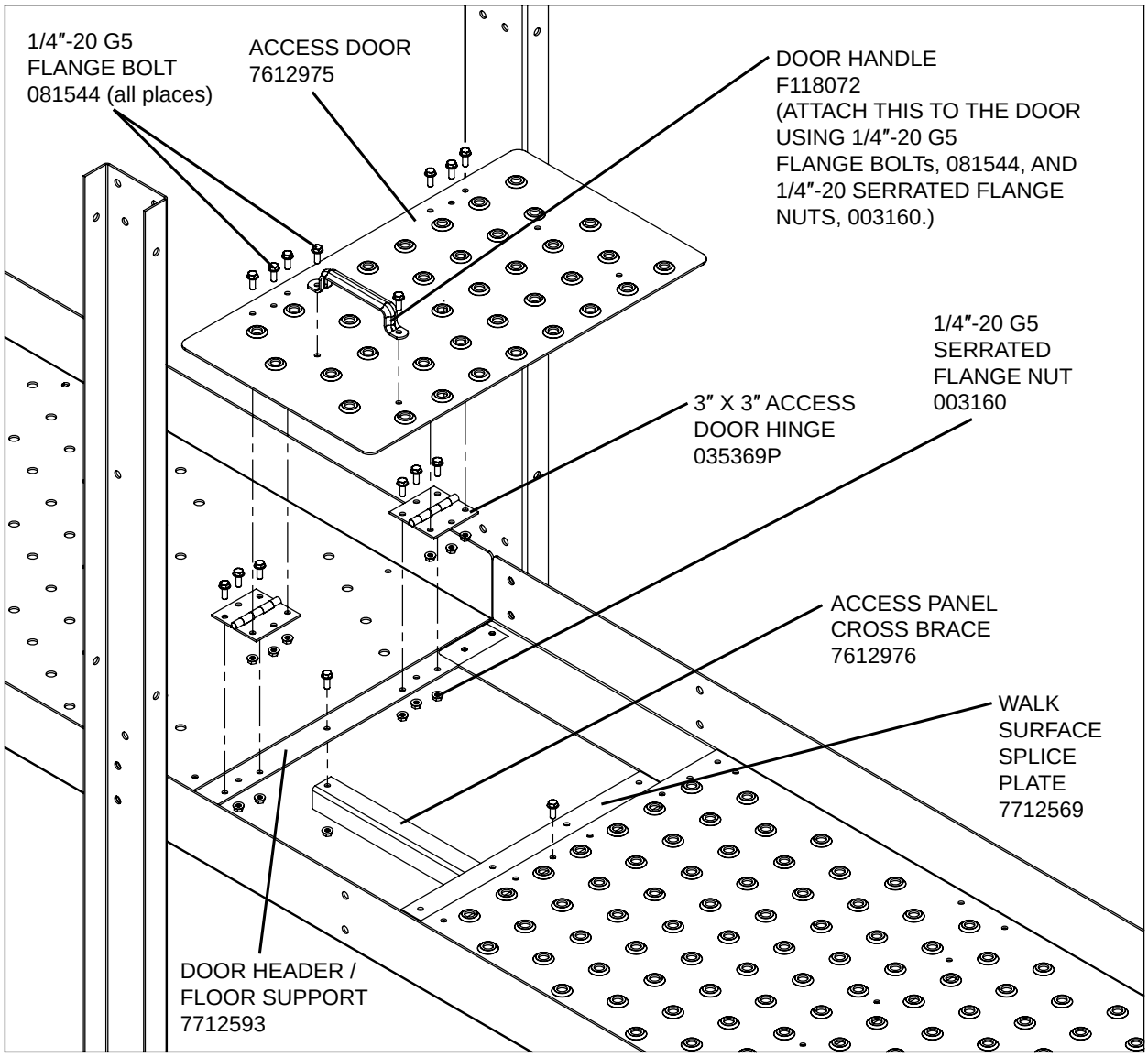
See the assembly detail on the next page.

Figure 62. Installing Access Doors



Part Number	Part Name	16’ Quantity	24’ Quantity	32’ Quantity
035369P	3” x 3” Access Door Hinge	4	4	4
F118072	Door Handle	2	2	2
7612975	Access Door	2	2	2
7612976	Access Panel Cross Brace	2	2	2
7712569	Walk Surface Splice Plate	2	2	2
7712593	Door Hinge Mount	2	2	2

Figure 63. Access Door Assembly Detail, View From Above



4.6.7 Installing Crossover Toe Boards and Crossover Braces

Install crossover braces (7711165) to the undersides of neighboring walk surfaces at crossover adjoining walk surface locations, and then install crossover toe boards (7711157) between walk surfaces.

- Use 1/4” bolts, nuts, and washers to install the crossover braces (7711165).
- Use 3/8” bolts, nuts, and washers to install crossover toe boards (7711157).

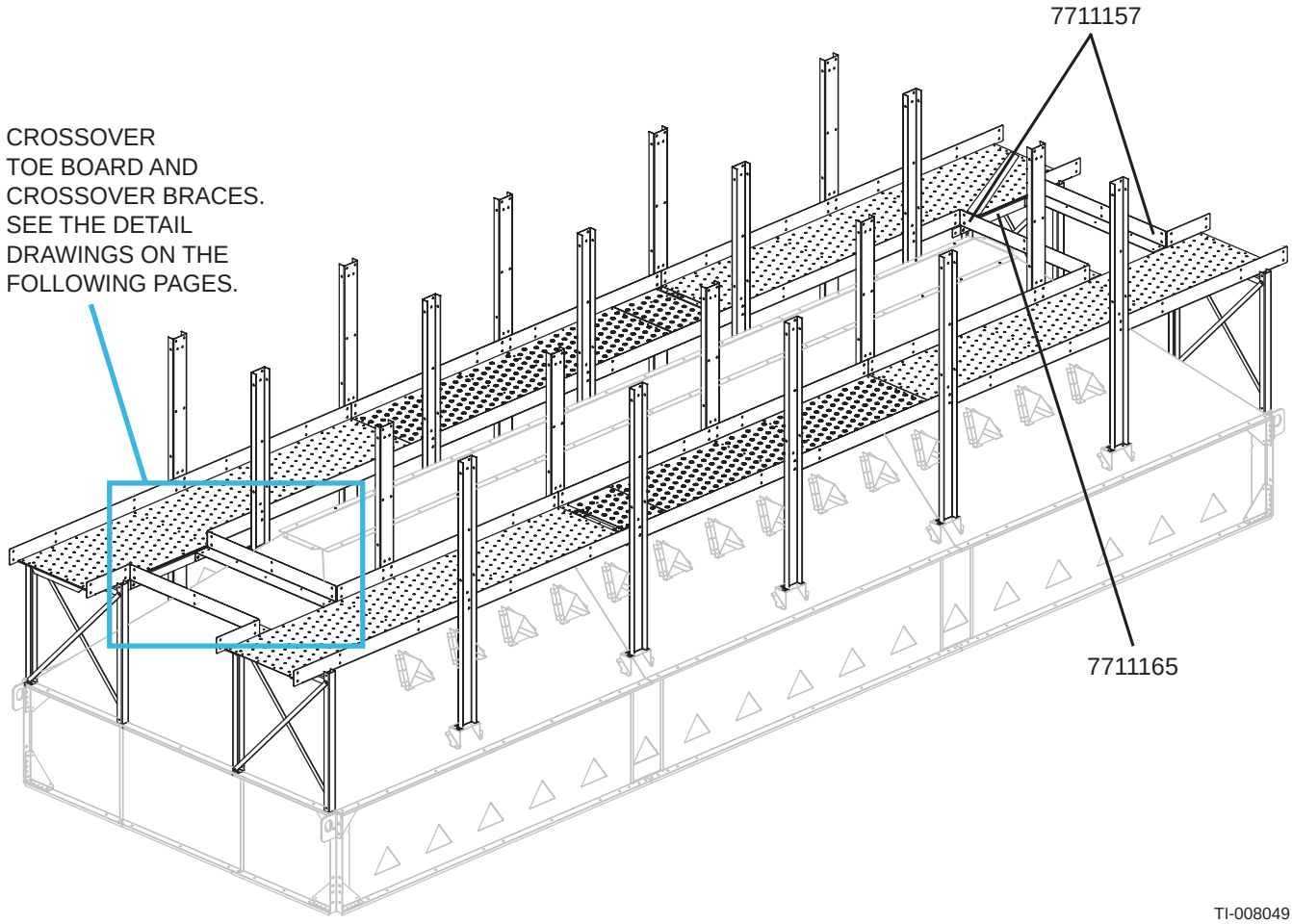
Important

Install crossover braces (7711165) first, then install crossover toe boards (7711157).

Note

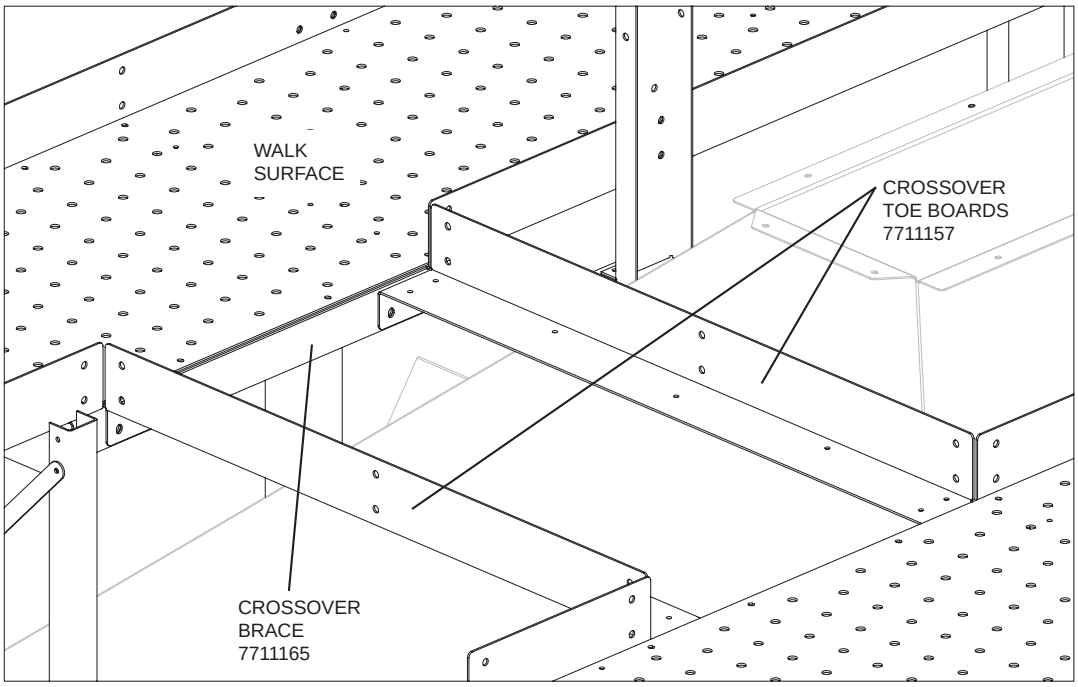
See the figures on the following page.

Figure 64. Installing Crossover Toe Boards and Crossover Braces



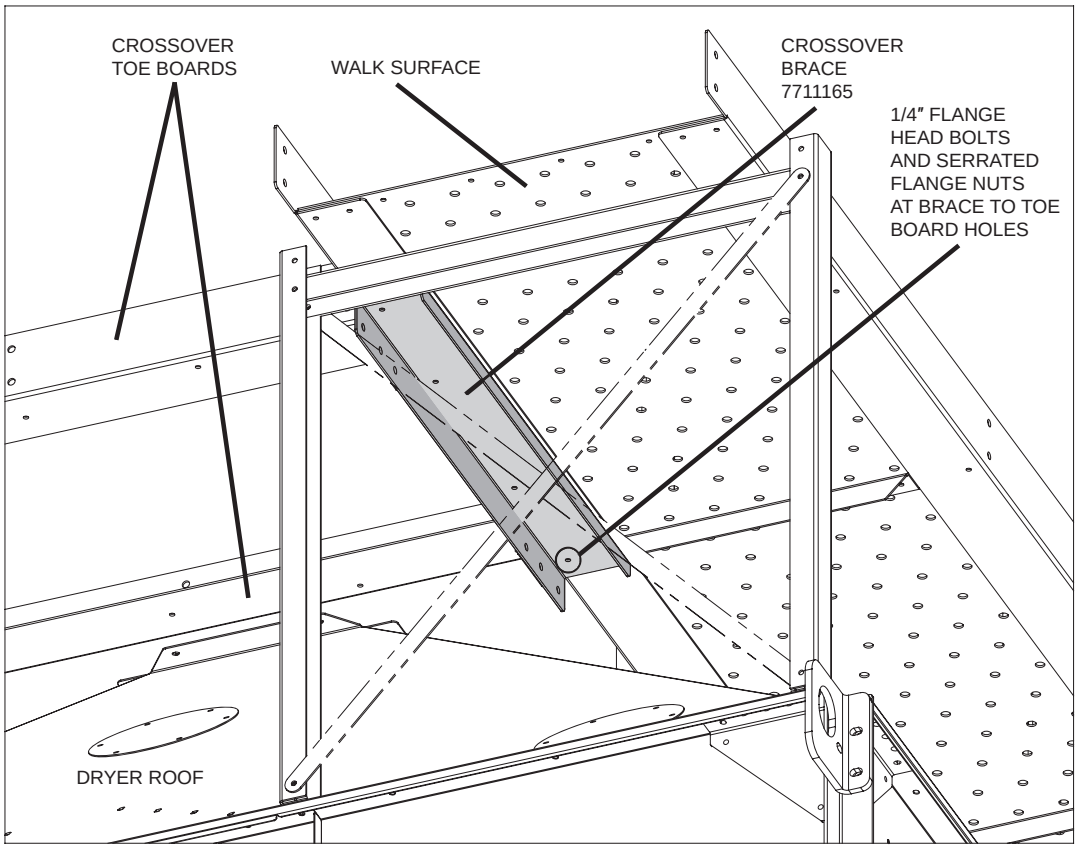
Part Number	Part Name	16’ Quantity	24’ Quantity	32’ Quantity
7711157	Crossover Toe-Board	4	4	4
7711165	Crossover Brace	4	4	4

Figure 65. Installing Crossover Toe Boards and Crossover Braces, Close-up View



Install crossover braces (77711165) at crossover end locations underneath walk surfaces.

Figure 66. Installing Crossover Braces, Close-up View From Below

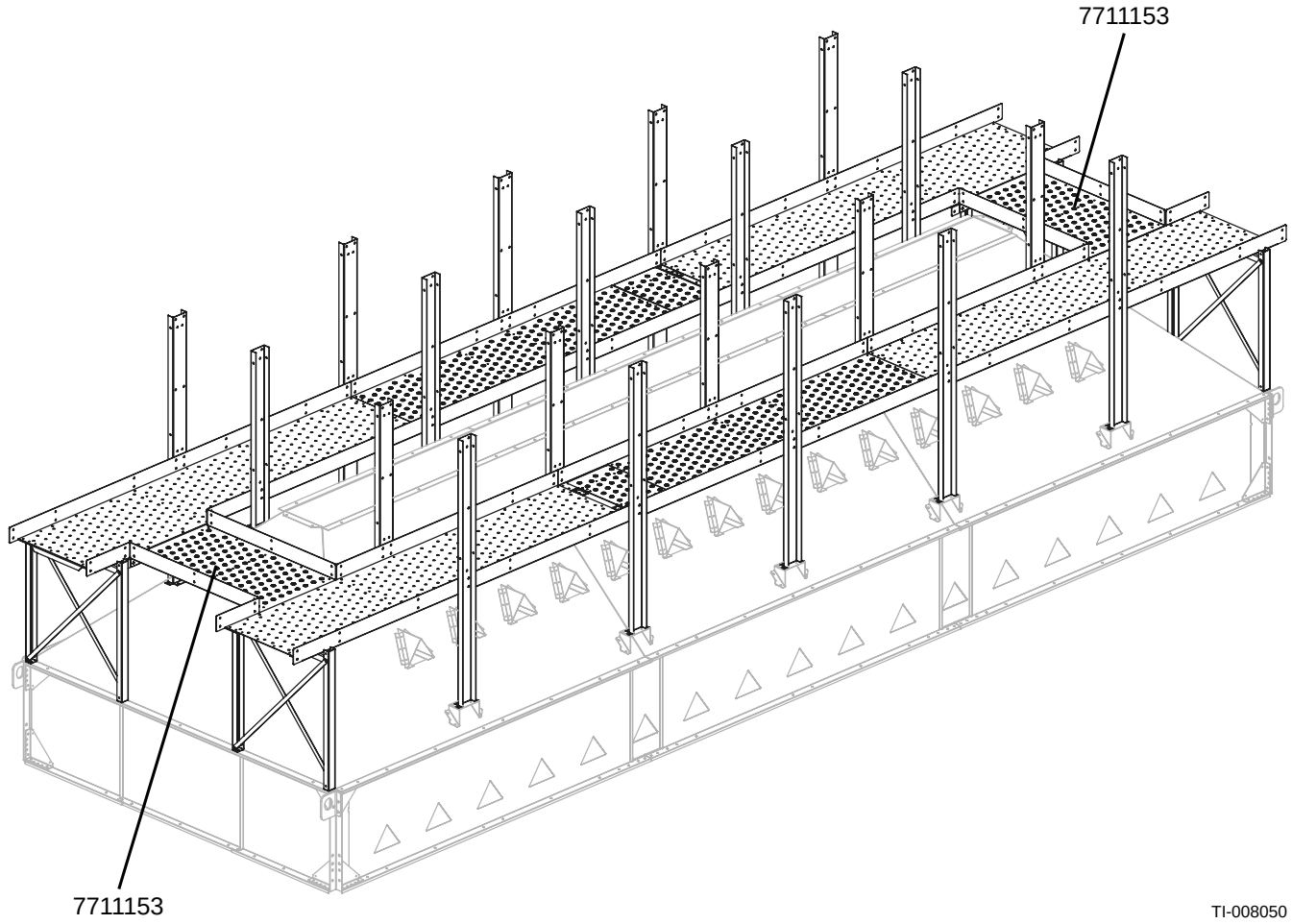


4.6.8 Installing Crossover Walk Surfaces

Install the crossover walk surfaces (7711153) to crossover toe boards.

- Use 1/4” nuts and flange-head bolts.

Figure 67. Installing Crossover Walk Surfaces



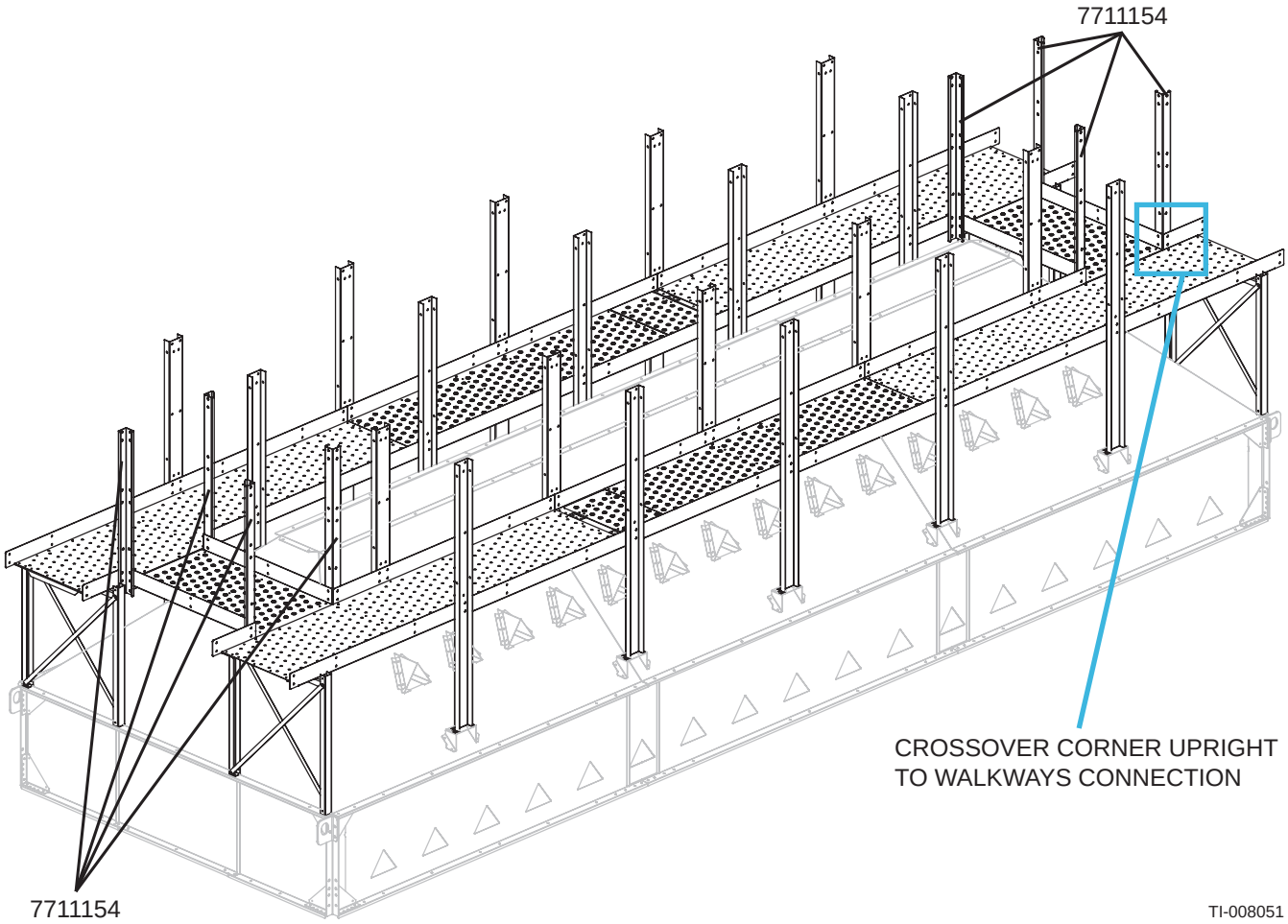
Part Number	Part Name	16’ Quantity	24’ Quantity	32’ Quantity
7711153	Crossover Walk Surface	2	2	2

4.6.9 Installing Crossover Corner Uprights

Install crossover corner uprights (7711154) in the corners formed by the toe boards. At the same time install crossover braces. See the instructions and figure on the following page.

- Use 3/8” nuts, bolts, and washers.

Figure 68. Installing Crossover Corner Uprights

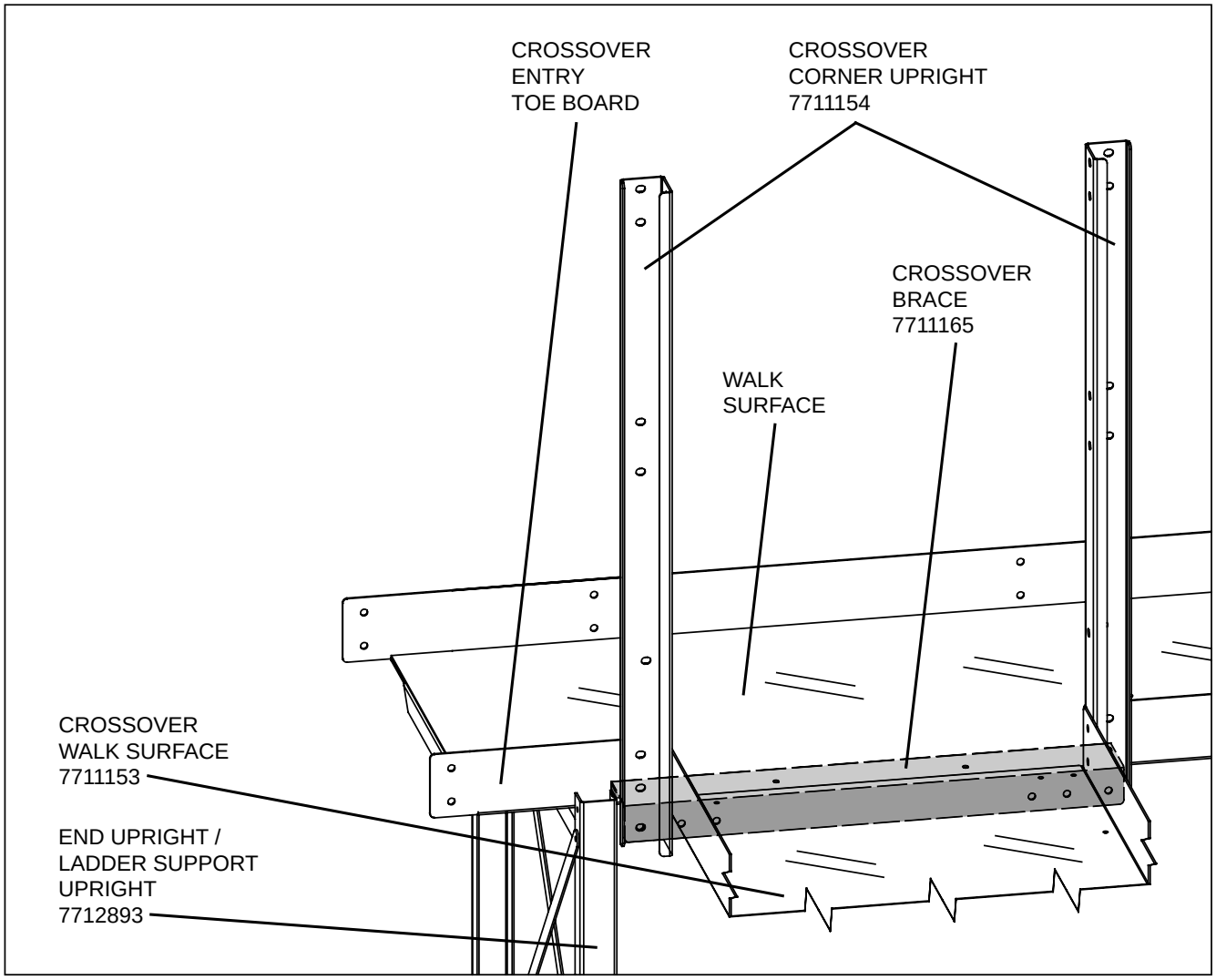


Part Number	Part Name	16’ Quantity	24’ Quantity	32’ Quantity
7711154	Crossover Corner Upright	8	8	8

Install the crossover corner uprights (7711154) to the toe boards and to crossover braces (7711165).

- Use 3/8” bolts, washers and nuts.

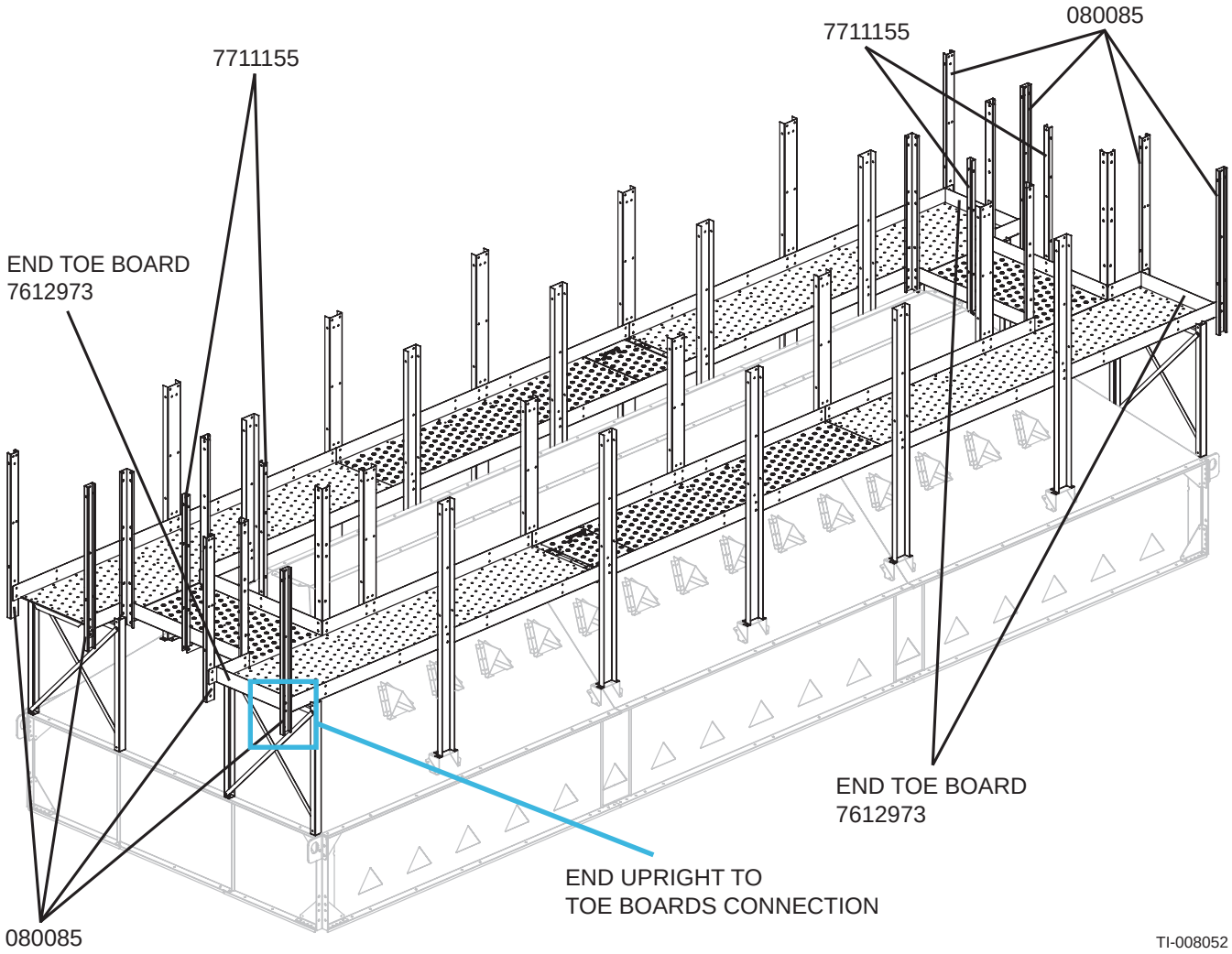
Figure 69. Installing Crossover Braces, Close-up Ghosted View



4.6.10 Installing Crossover Handrail Support Braces and Other Uprights

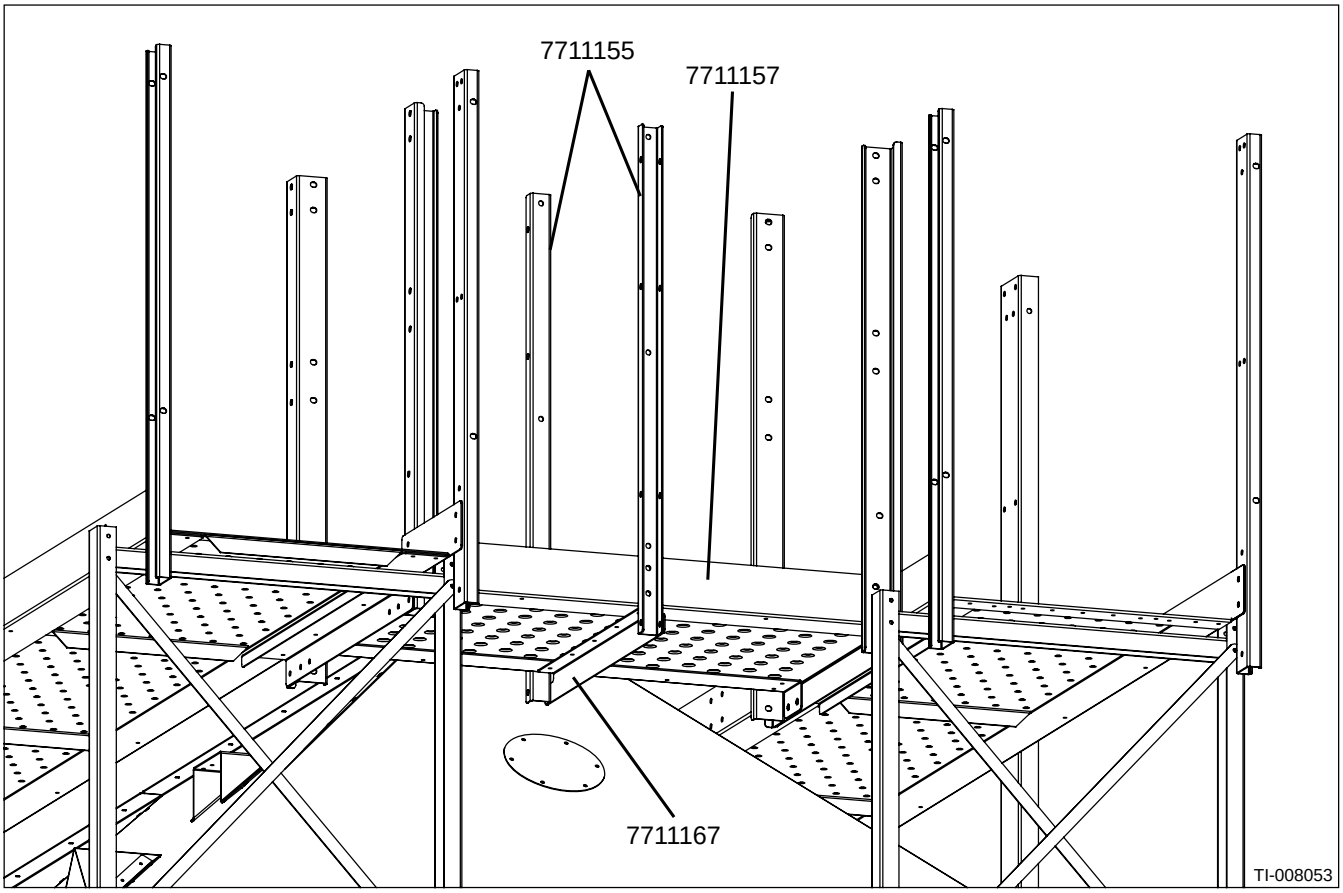
1. Install the crossover handrail support brace (7711167) to the crossover walk surface (7711153) and crossover toe boards (7711157).
   - Use 3/8” bolts, washers, and nuts.
2. Install the other upright supports at both catwalk ends.
   - Use 3/8” bolts, washers, and nuts.
3. Install the end toe-boards (7612973) to the ends of the already-installed walk surfaces.
   - Use 1/4” bolts and nuts.

Figure 70. Installing Mid and End Uprights



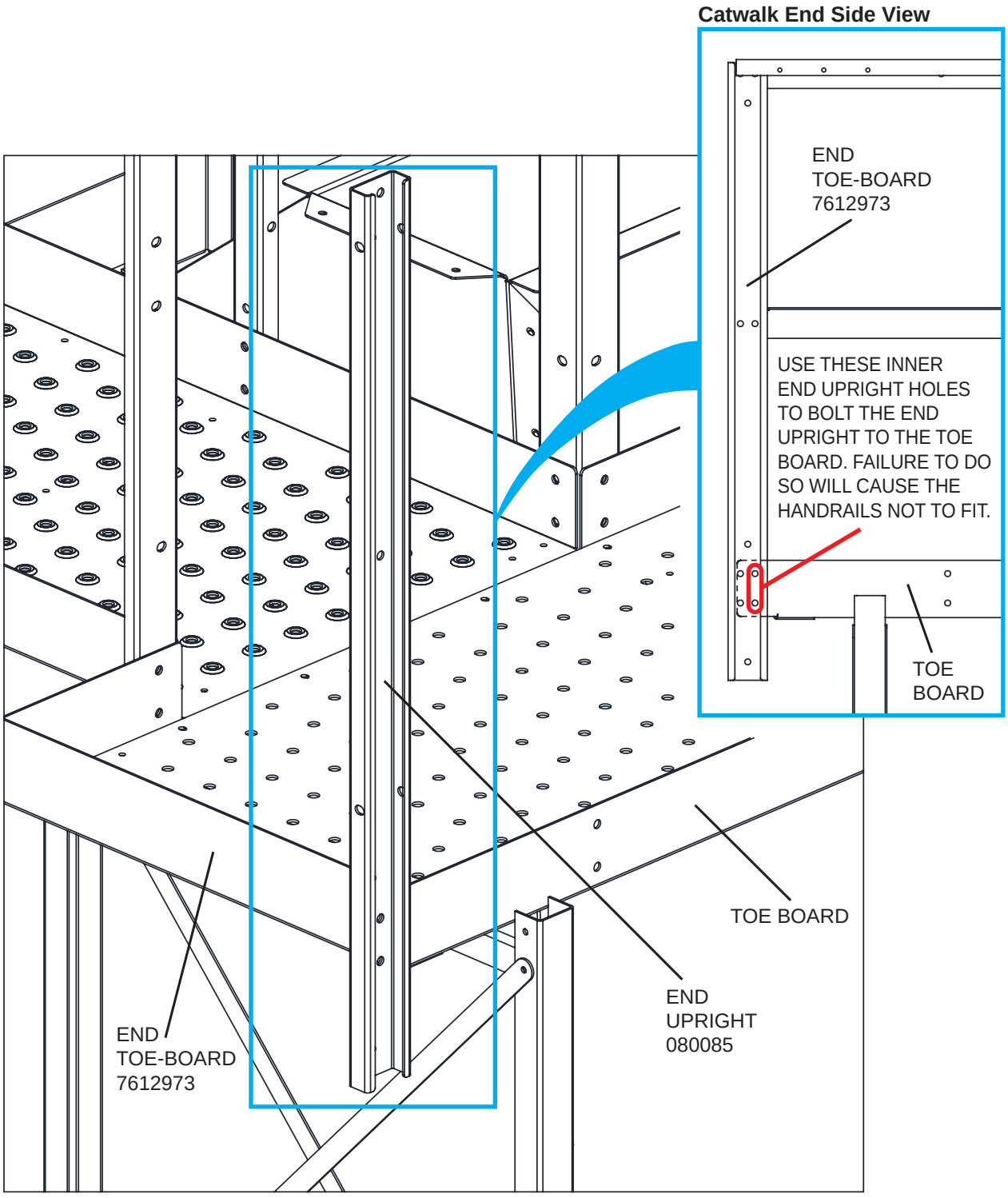
Part Number	Part Name	16’ Quantity	24’ Quantity	32’ Quantity
080085	End Upright / Ladder Extension	8	8	8
7711155	Mid Upright	4	4	4
7711167	Handrail Support Brace	2	2	2
7612973	End Toe Board	3	3	3

Figure 71. Installing Handrail Support Braces and Crossover Uprights



Part Number	Part Name	16′ Quantity	24′ Quantity	32′ Quantity
7711167	Handrail Support Brace	2	2	2
7711155	Mid Upright	4	4	4

Figure 72. Installing End Upright, Close-up View



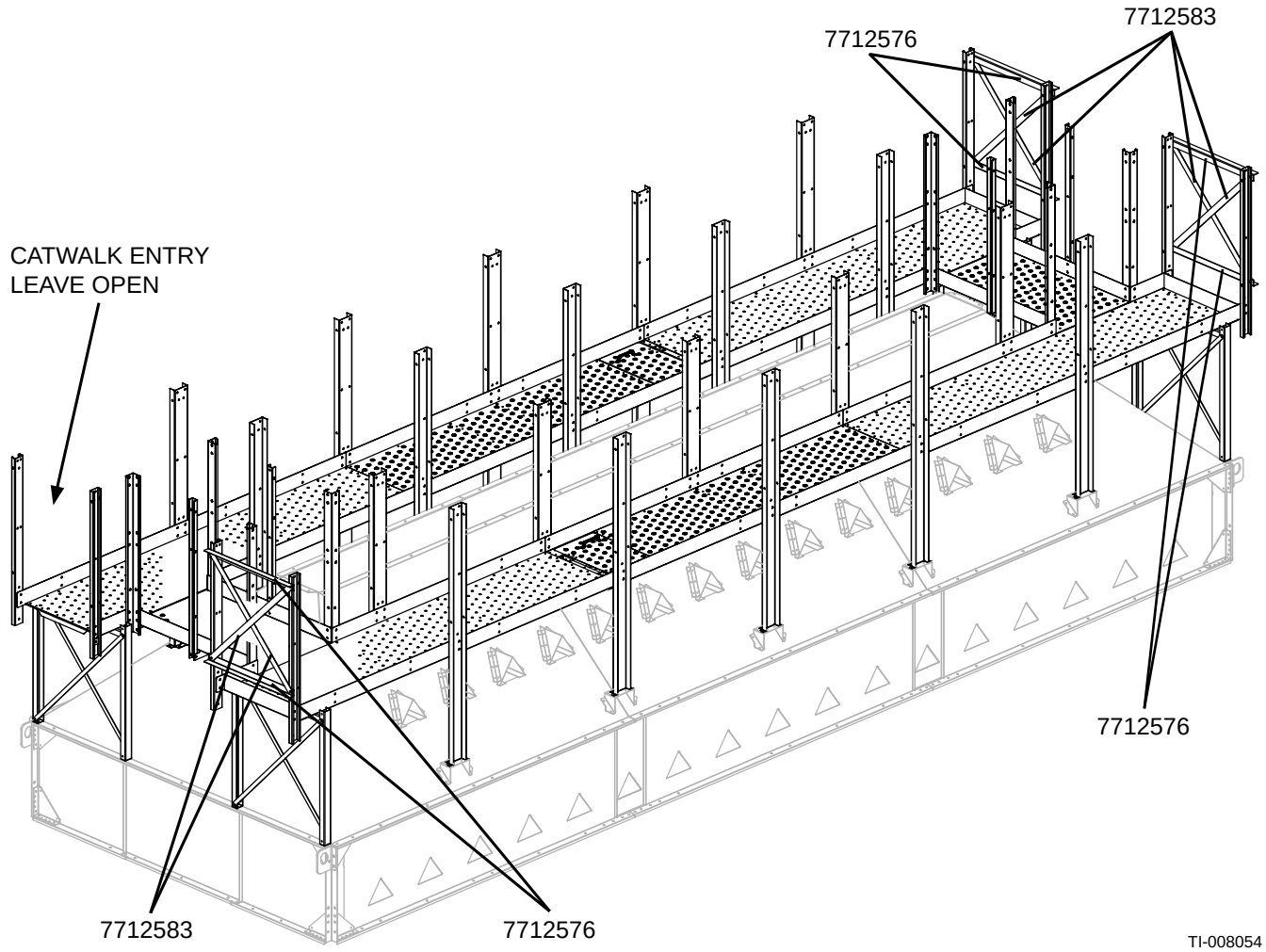
Part Number	Part Name	16′ Quantity	24′ Quantity	32′ Quantity
080085	End Upright / Ladder Extension	8	8	8
7612973	End Toe Board	3	3	3

4.6.11 Installing End Bracing

Install the end braces leaving one end open at the catwalk entry location.

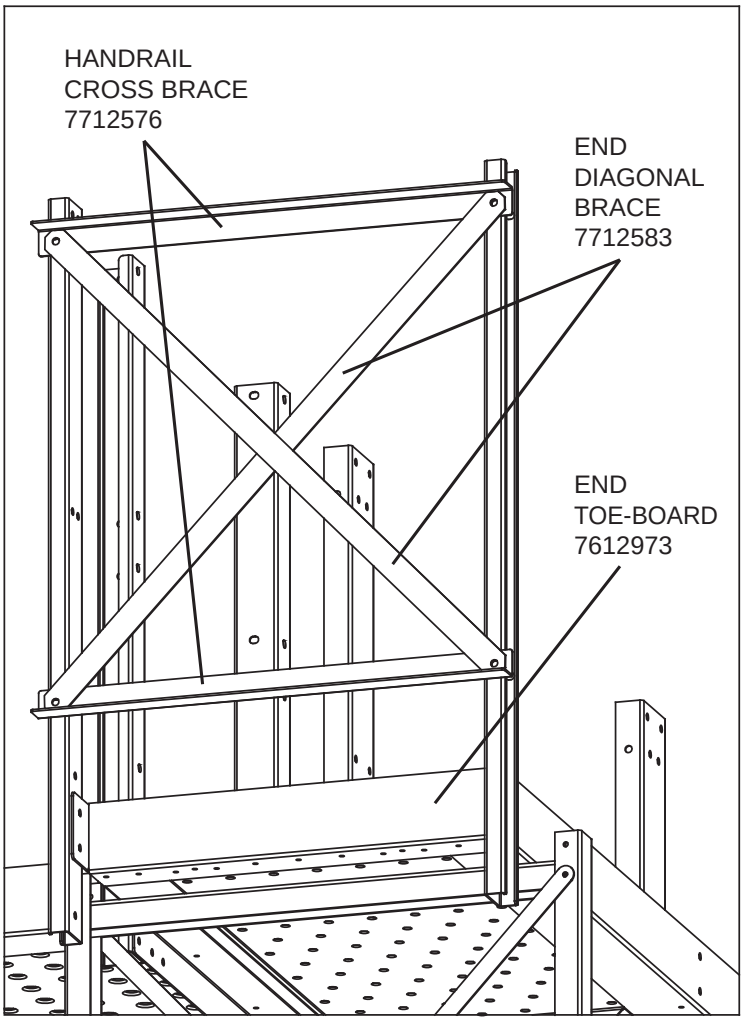
- Use 3/8” nuts, bolts, and washers to install the braces.
- See the detail on the next page.

Figure 73. Installing End Braces



Part Number	Part Name	16' Quantity	24' Quantity	32' Quantity
7712576	Handrail Cross Brace	6	6	6
7712583	End Diagonal Brace	6	6	6

Figure 74. Installing End Braces, Close-up View

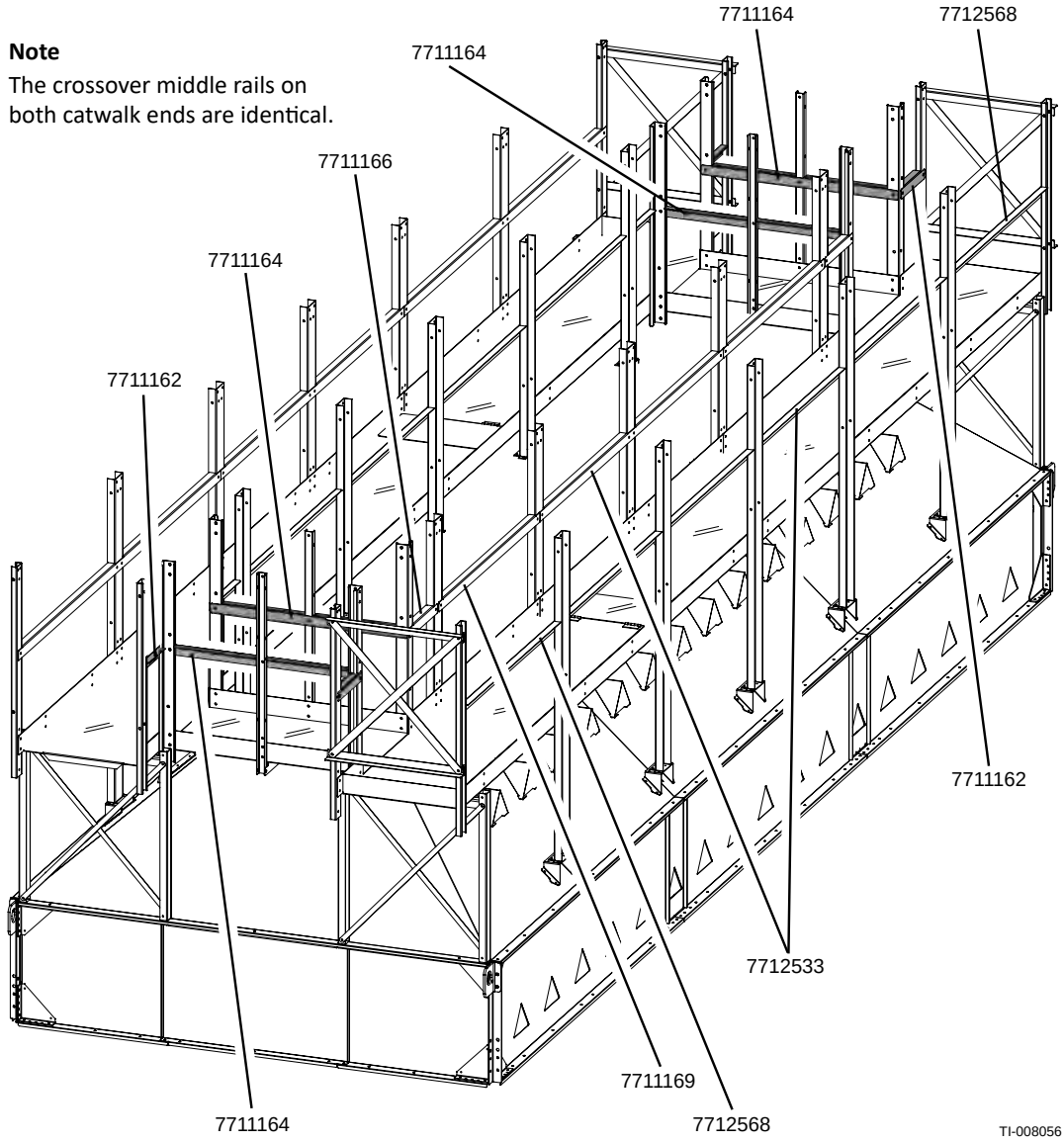


4.6.12 Installing Crossover Middle Rails

Install crossover middle rails.

- Use 3/8” nuts, bolts, and washers.

Figure 75. Installing Crossover Middle Rails



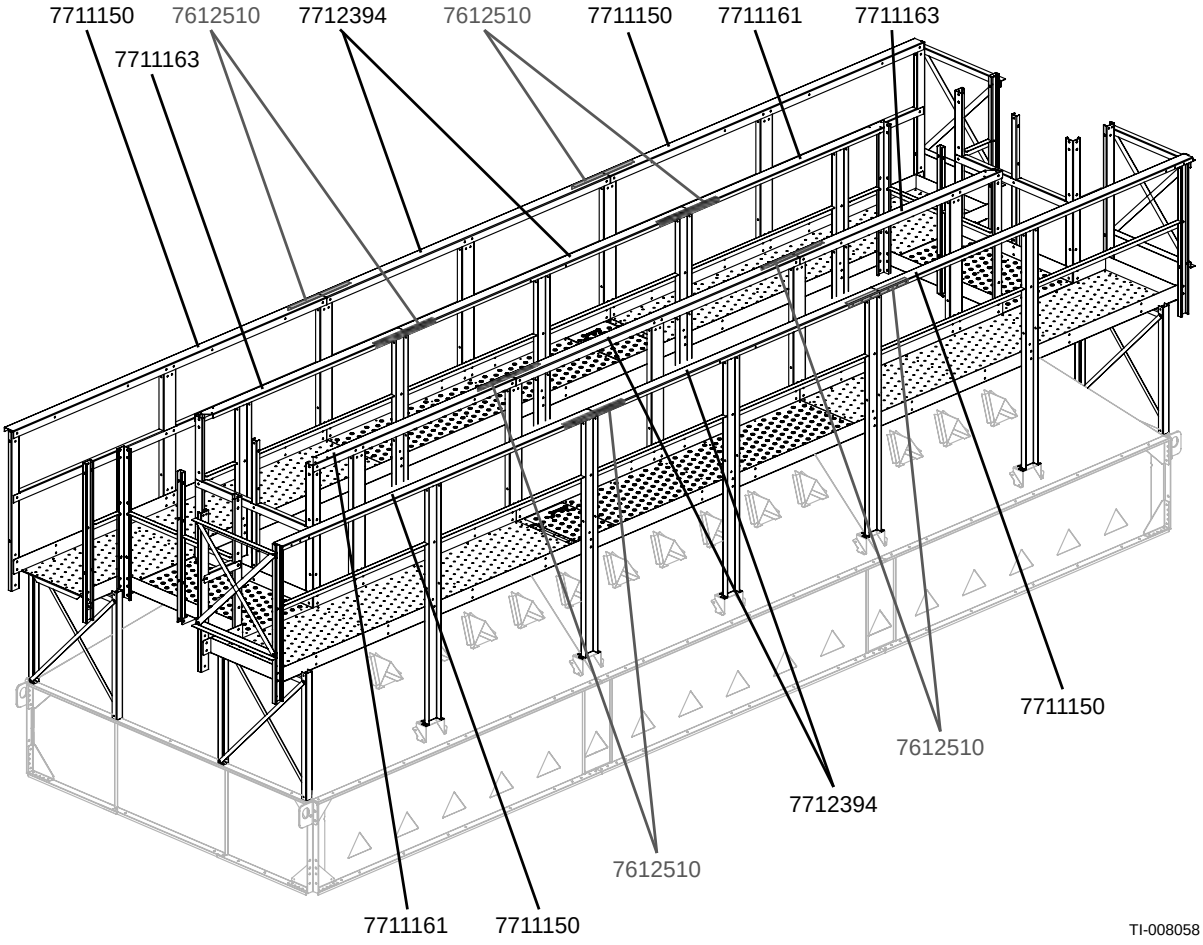
Part Number	Part Name	16’ Quantity	24’ Quantity	32’ Quantity
7711162	10.6” Lower Handrail	4	4	4
7711164	Lower Crossover Handrail	4	4	4
7711166	13” Lower Handrail	4	4	4
7711169	50-1/2” Lower Middle Handrail	N/A	4	4
7712533	96” Lower Middle Handrail	N/A	4	8
7712568	106” Lower Front Handrail	6	4	4

4.6.13 Installing Top Rails and Top Handrail Splice Connections

1. Install inner and outer top rails.
   - Use 3/8” nuts, bolts, and washers.
2. Install handrail splices (7612510) between upper handrails.
   - Use 1/4” nuts and flange-head bolts.

Note
See the handrail splice assembly detail drawings on the following page.

Figure 76. Installing Outer Top Rails



Part Number	Part Name	16’ Quantity	24’ Quantity	32’ Quantity
7711150	106” Upper Front Handrail	4	4	4
7711161	LH Long Corner Handrail	2	2	2
7711163	RH Long Corner Handrail	2	2	2
7712394	96” Upper Middle Handrail	N/A	4	8
7612510	Handrail Splice	4	8	12

Figure 77. Installing Handrail Splices

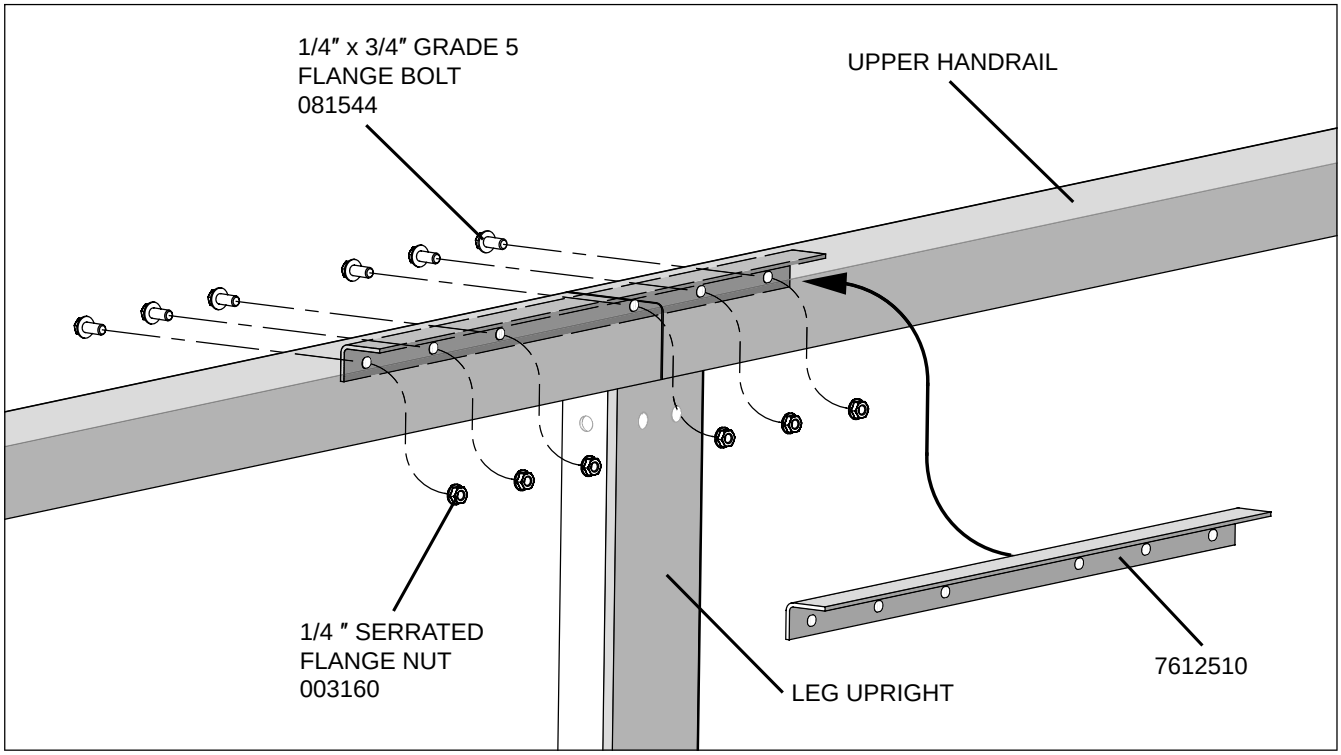
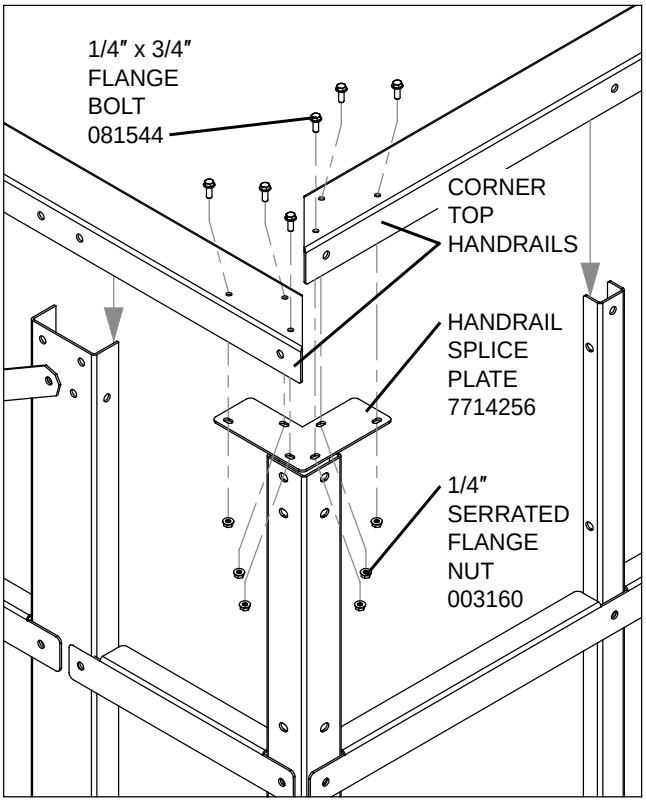
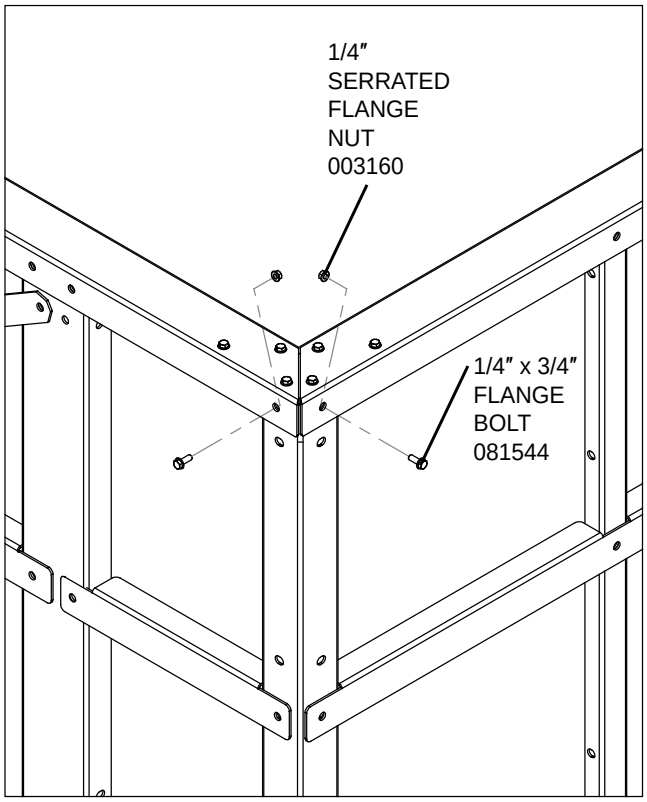


Figure 78. Installing Handrail Splice Plates



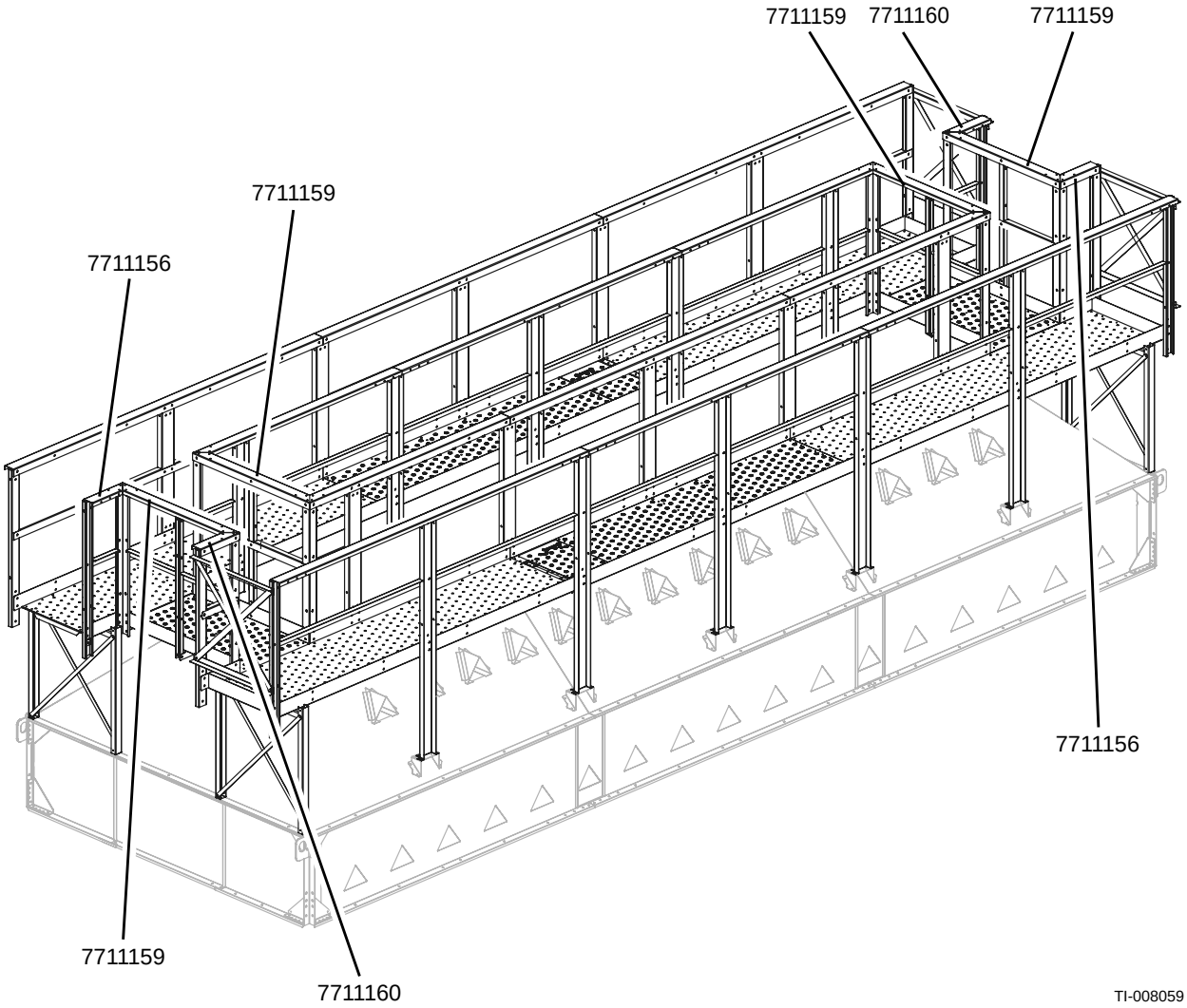


4.6.14 Installing Crossover Top Rails

1. Install the crossover top rails.
   - Use 3/8” bolts, nuts, and washers.
2. Install handrail splice plates (7714526) between top rails.
   - Use 1/4” nuts and flange-head bolts.

   Note
   See handrail splice plate (7714256) installation instructions on the previous page.

Figure 79. Installing Crossover Top Rails



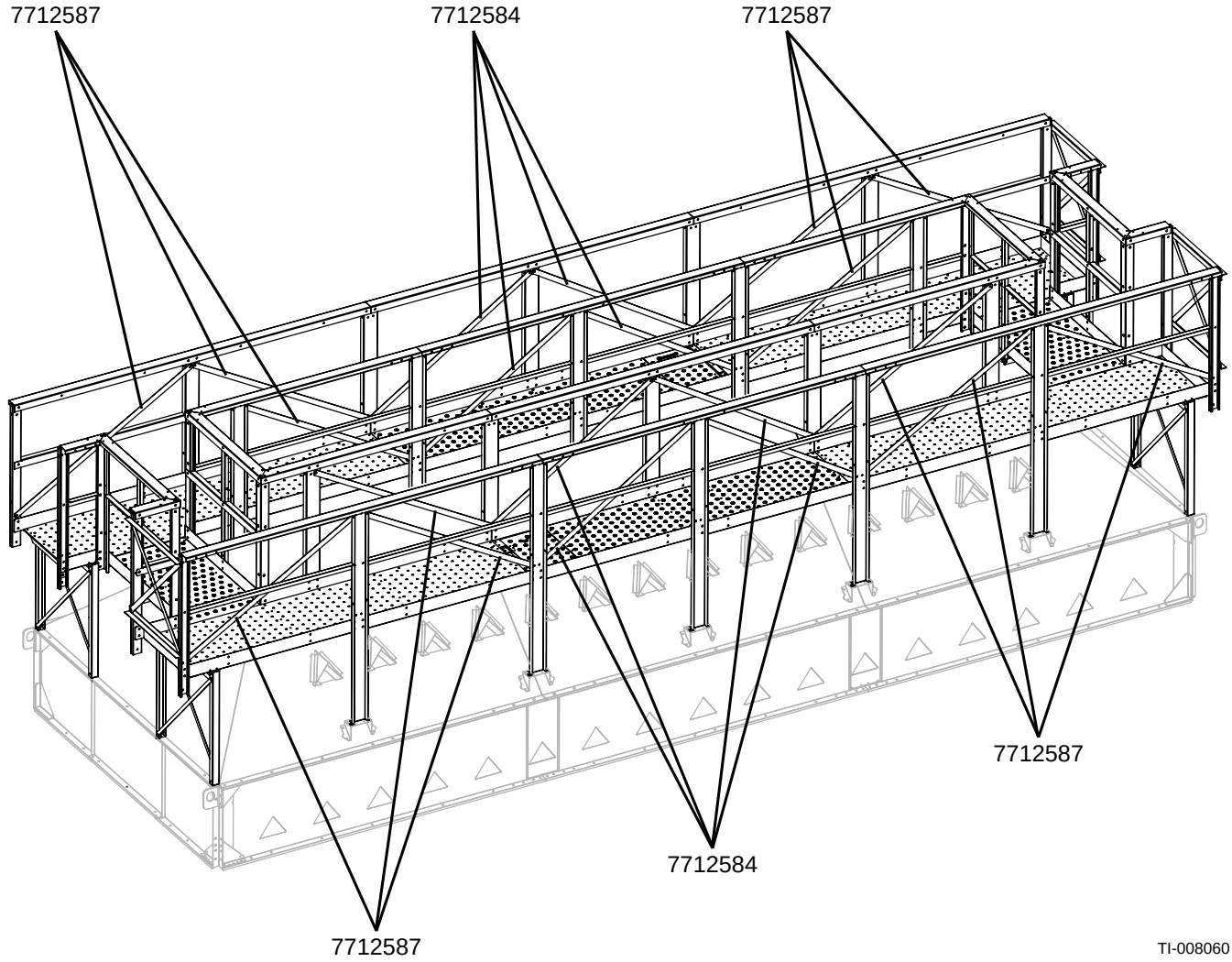
Part Number	Part Name	16’ Quantity	24’ Quantity	32’ Quantity
7711156	LH Short Corner Handrail	2	2	2
7711159	Crossover Handrail	4	4	4
7711160	RH Short Corner Handrail	2	2	2
7714256	Handrail Splice Plate	8	8	8

4.6.15 Installing Diagonal Braces

Install the diagonal braces as shown.

- Use 3/8” nuts, bolts, and washers.

Figure 80. Installing Diagonal Braces



Part Number	Part Name	16’ Quantity	24’ Quantity	32’ Quantity
7712584	Side Mid Diagonal Brace	0	8	16
7712587	Front Side Diagonal Brace	12	12	12

Figure 81. Diagonal Brace Installation, Close-up View

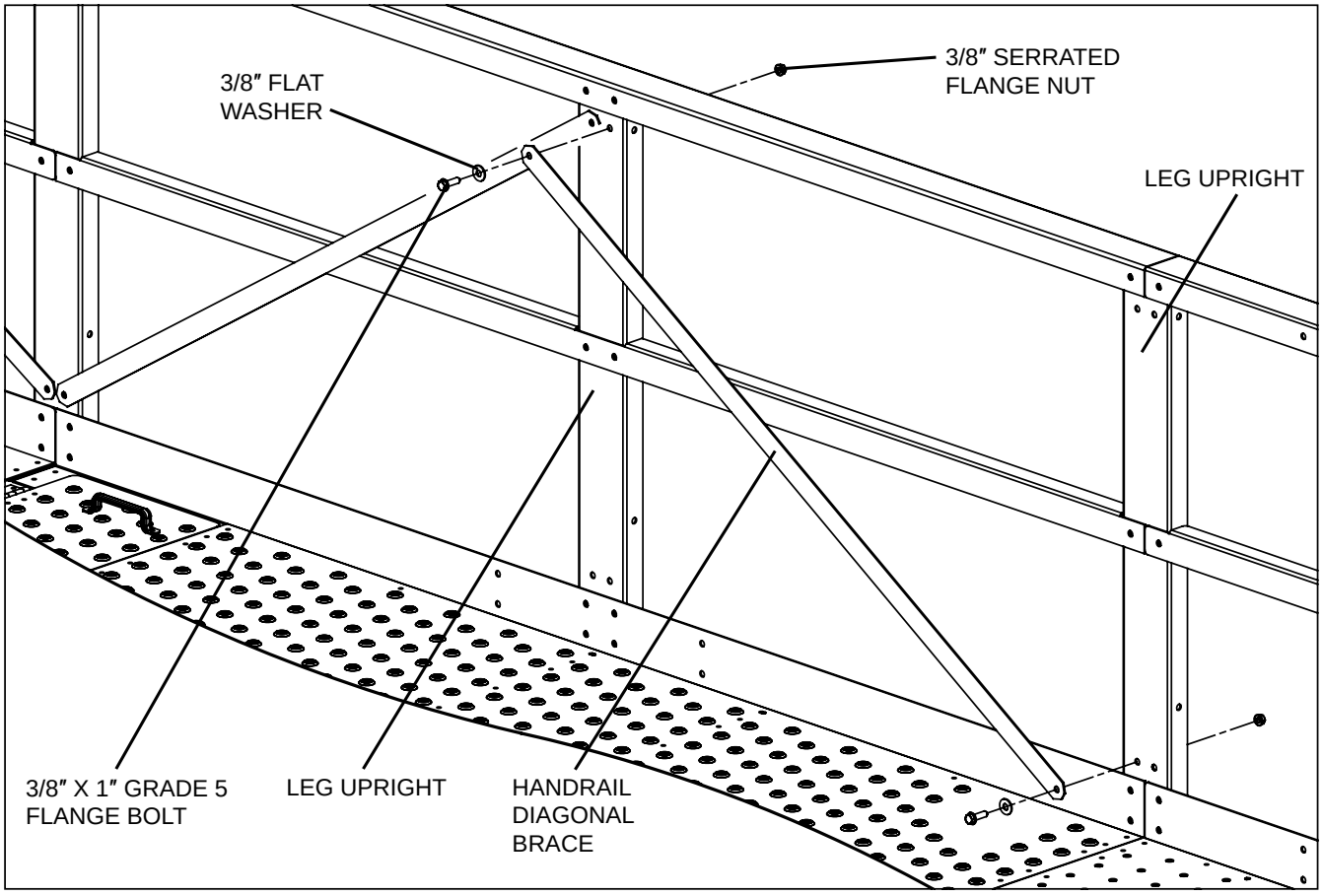
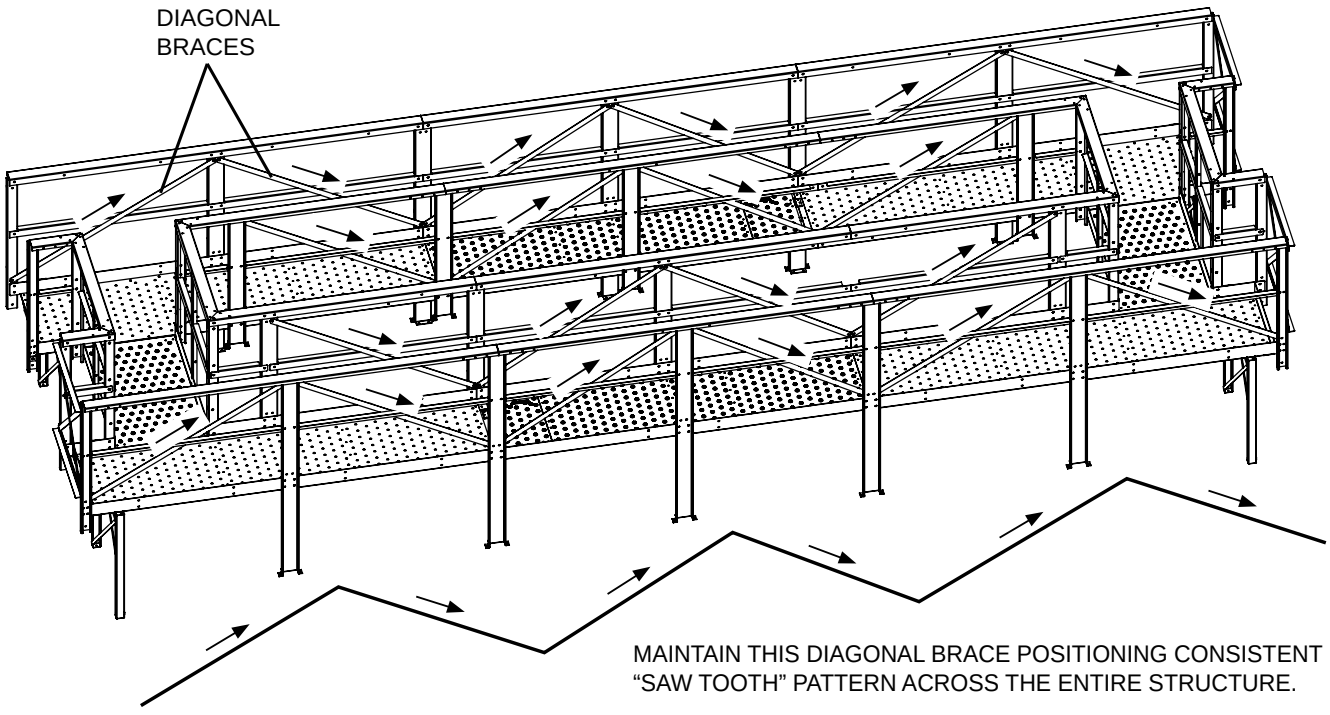


Figure 82. Maintaining the Correct Diagonal Brace Positioning (“Saw Tooth Pattern”)



4.7. Blower Mount and Raised Blower Access Platform Assembly

Note

The instructions on this page pertain only to dryer installations having a grain pre-cleaner.

- The blower mount and/or access platform can be installed in the following acceptable locations on the catwalk.
- Install the blower motor in-line with the center of the gravity fill.

Figure 83. 16’ Acceptable Blower Mount Installation Locations

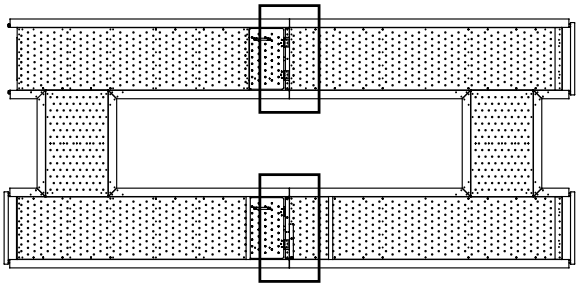


Figure 84. 24’ Acceptable Blower Mount and Access Platform Installation Locations

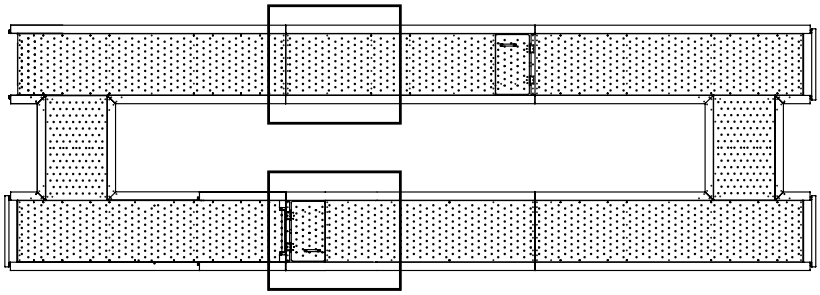
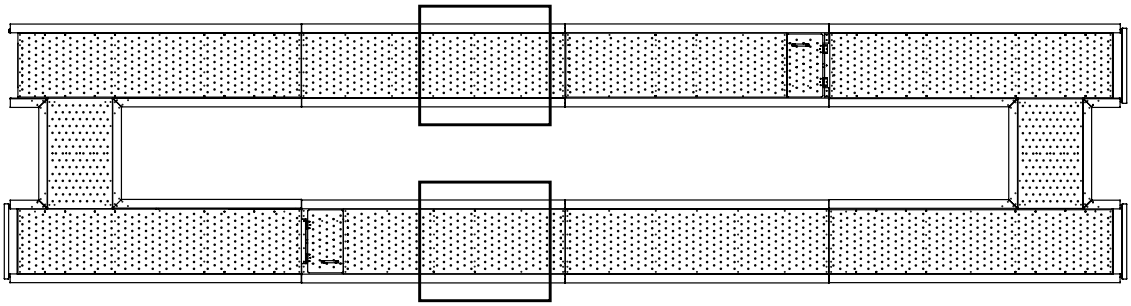


Figure 85. 32’ Acceptable Blower Mount and Access Platform Installation Locations



4.7.1 16’ Blower Mount Installation

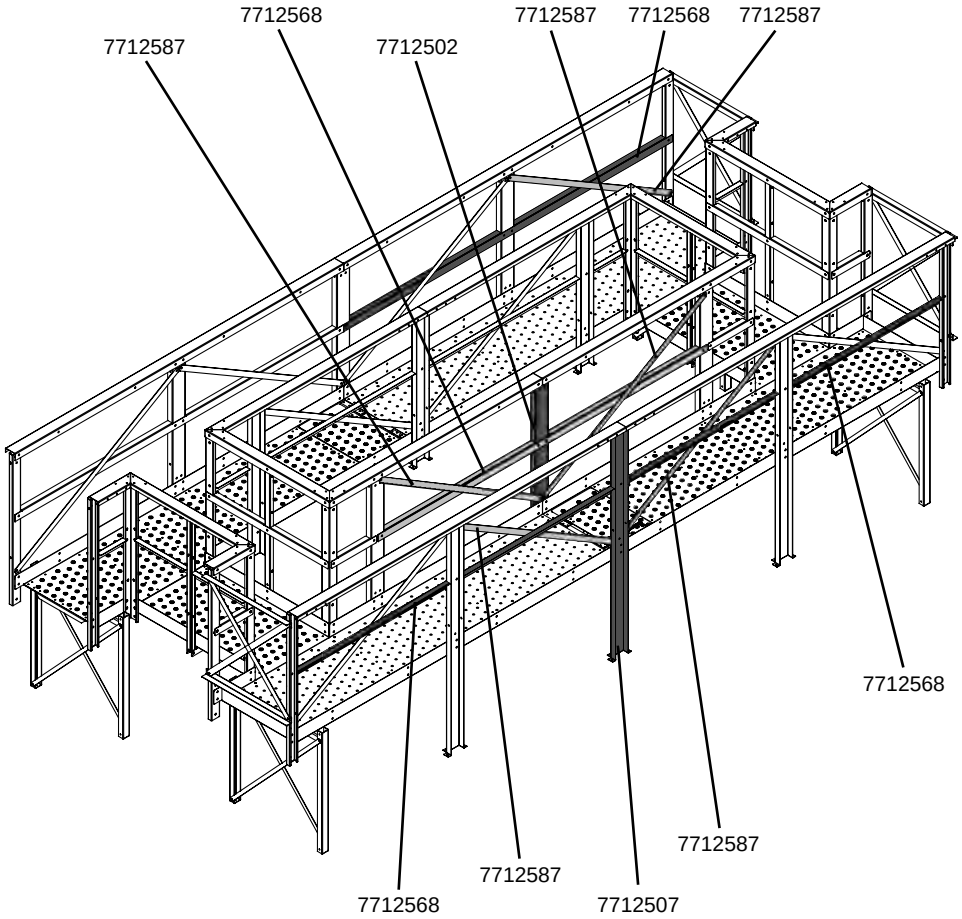
Removing Designated 16’ Catwalk Parts in Preparation for Mount Assembly

Remove the following 16’ catwalk parts and temporarily support the remaining catwalk assembly until the 16’ blower mount assembly is installed.

Note

The following installation is a Cyclone Right Hand (RH) discharge installation. Components are in opposite orientation on a Cyclone Left Hand (LH) installation.

Figure 86. Removing Parts In Preparation for Blower Mount Assembly



Part Number	Part Name	Quantity
7612502	Inner Leg Upright	1
7612507	Outer Leg Upright	1
7612568	106” Lower Front Handrail	4
7612587	Front Side Diagonal Brace	5

Installing Short Blower Mount Leg Uprights

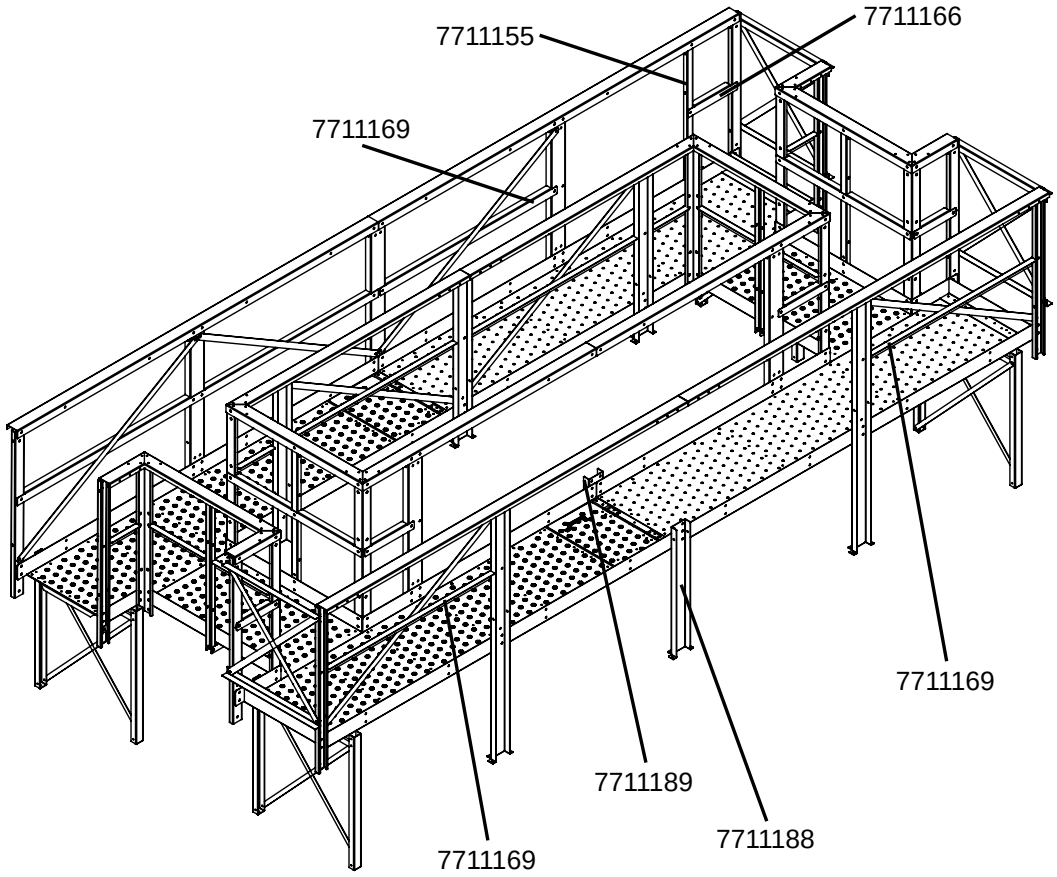
Install short catwalk uprights in the center of the catwalk.

- Install the uprights to the factory installed roof feet using 1/4” flange head bolts.
- Install the uprights to the toe boards using 3/8” bolts and washers.

Note

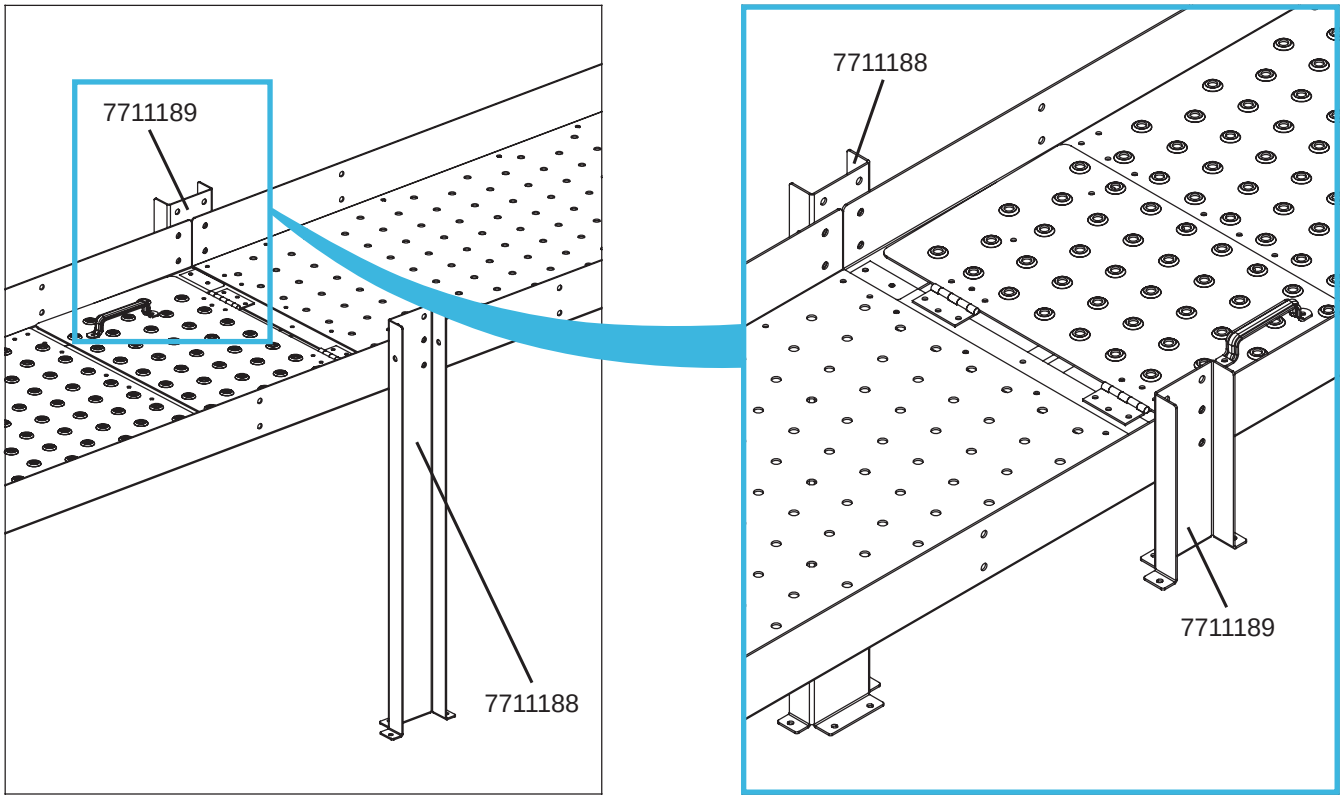
See also the figure on the next page.

Figure 87. Installing Short Blower Mount Leg Uprights



Part Number	Part Name	Quantity
7711188	16’ Short Blower Mount Outer Leg Upright	1
7711189	16’ Short Blower Mount Inner Leg Upright	1
7711155	Mid Upright	1
7711166	13” Lower Handrail	1
7711169	50-1/2” Lower Handrail	3

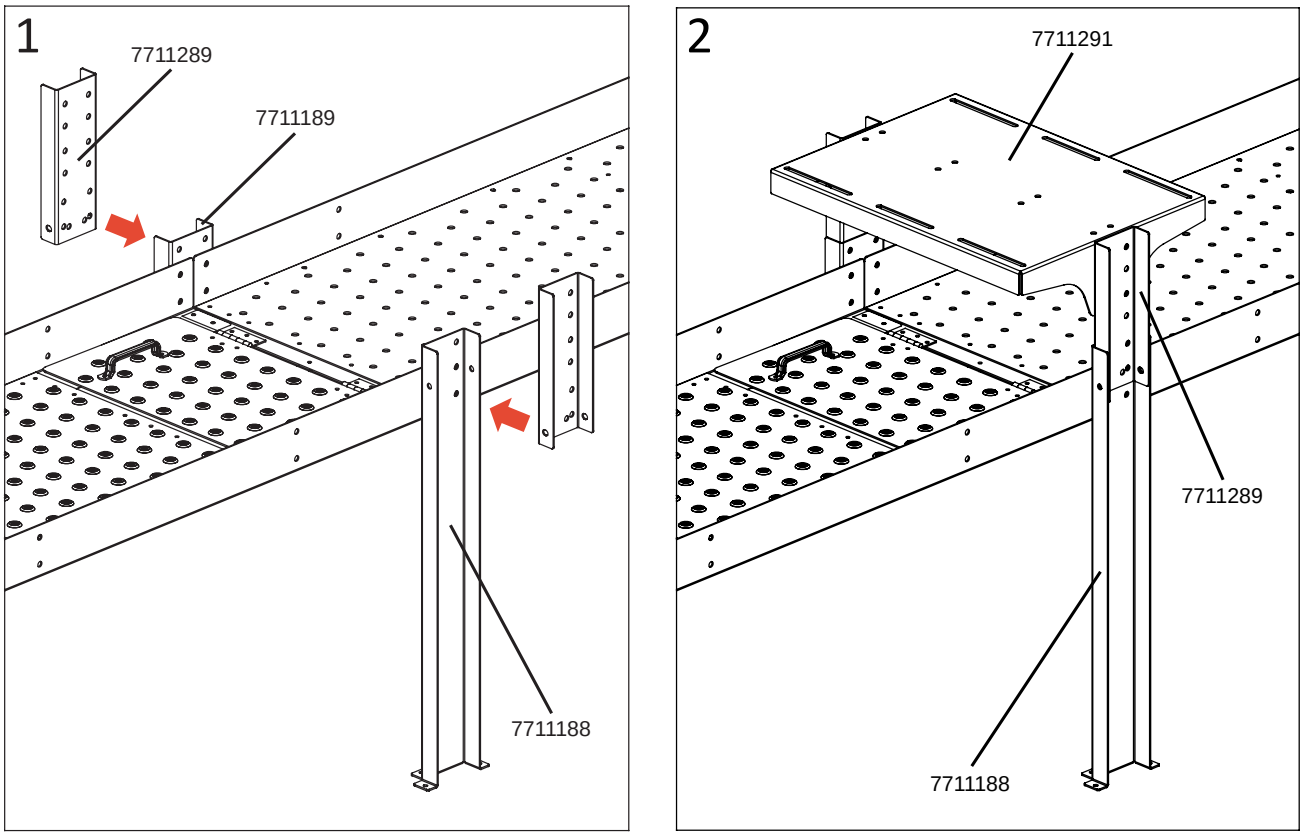
Figure 88. Installing Short Blower Mount Leg Uprights, Close-up Views



Installing the 16’ Motor Mount Base Onto the Short Catwalk Uprights

1. Install the motor mount uprights (7711289) to the 16’ blower inner and outer uprights.
   - Use 3/8” bolts, washers, and flanged nuts.
2. Install the 17” blower and motor mount base (7711291) to the motor mount uprights (7711289), keeping the top of the base flush with the top of the uprights.
   - Use 3/8” bolts, washers, and flanged nuts.

Figure 89. Installing the 16’ Blower and Motor Mount Base to the Short Leg Uprights



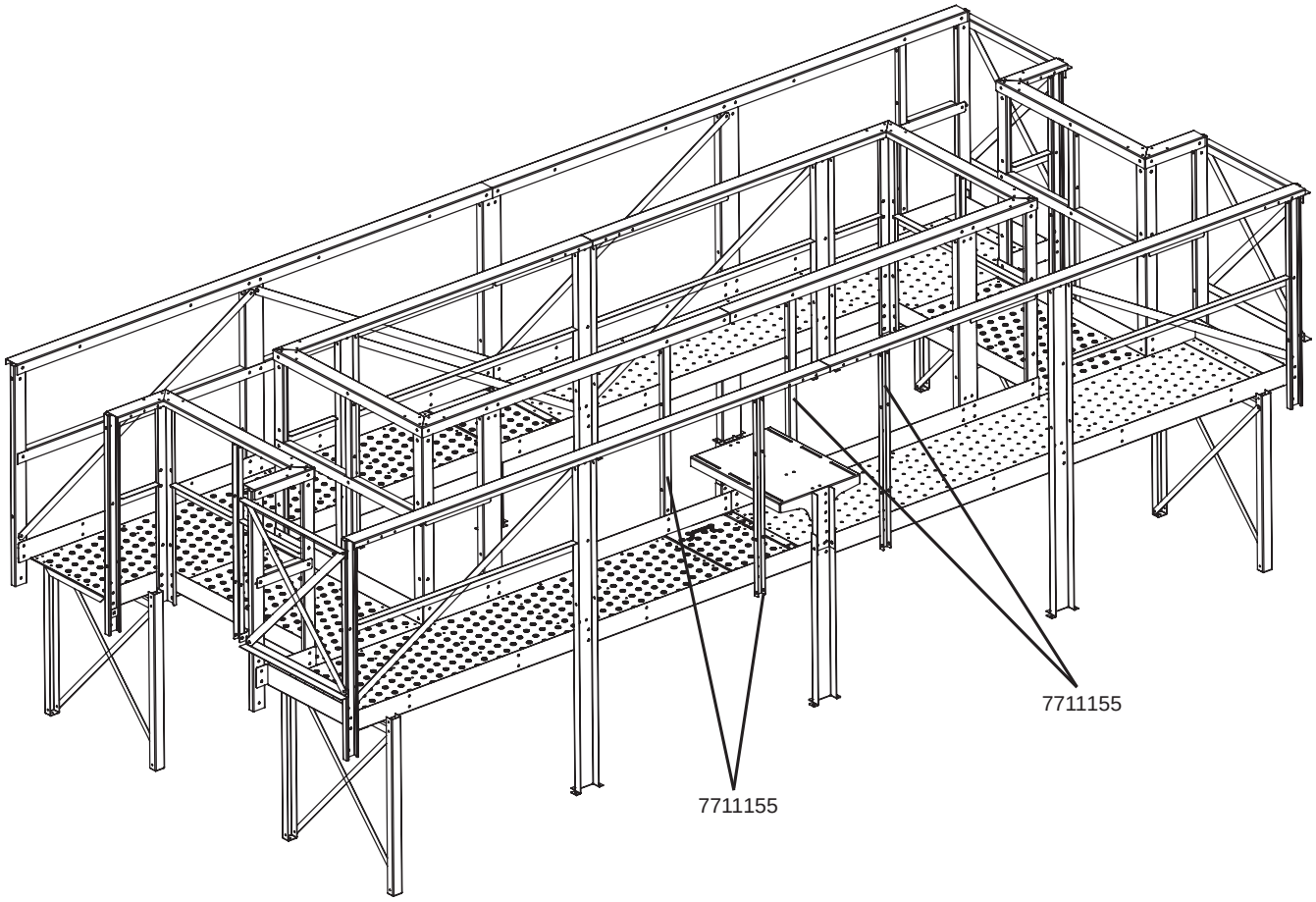
Part Number	Part Name	Quantity
7711188	16’ Short Blower Mount Outer Leg Upright	1
7711189	16’ Short Blower Mount Inner Leg Upright	1
7711289	Motor Mount Upright	2
7711291	17” Blower and Motor Mount Base	1

Installing Mid Uprights Next to the Motor Mount Base

Install mid uprights (7711155) next to the motor mount base.

- Use 3/8” bolts, washers, and flange nuts.

Figure 90. Installing Mid Uprights Next to the Blower and Motor Mount Base



Part Number	Part Name	Quantity
7711155	Mid Upright	4

Installing Middle Rails Next to the Motor Mount Base

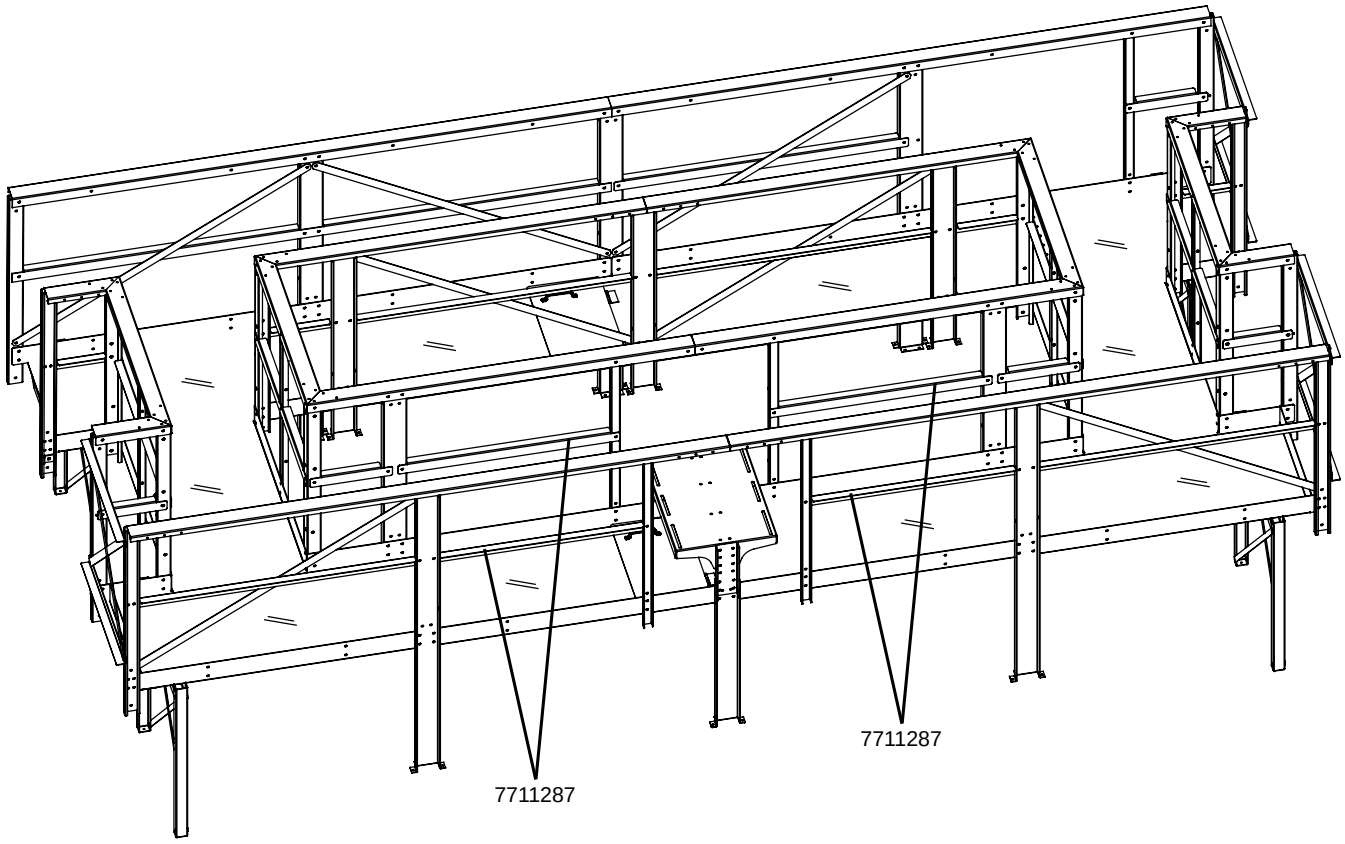
Install middle rails next to the motor mount base.

- Use 3/8” bolts, washers, and flange nuts.

Note

Position the middle rail gap in the location the aspirator pipe will be routed through. The middle rail gap doesn’t need to be in the location depicted in the following figure.

Figure 91. Installing Middle Rails Next to the Blower and Motor Mount Base



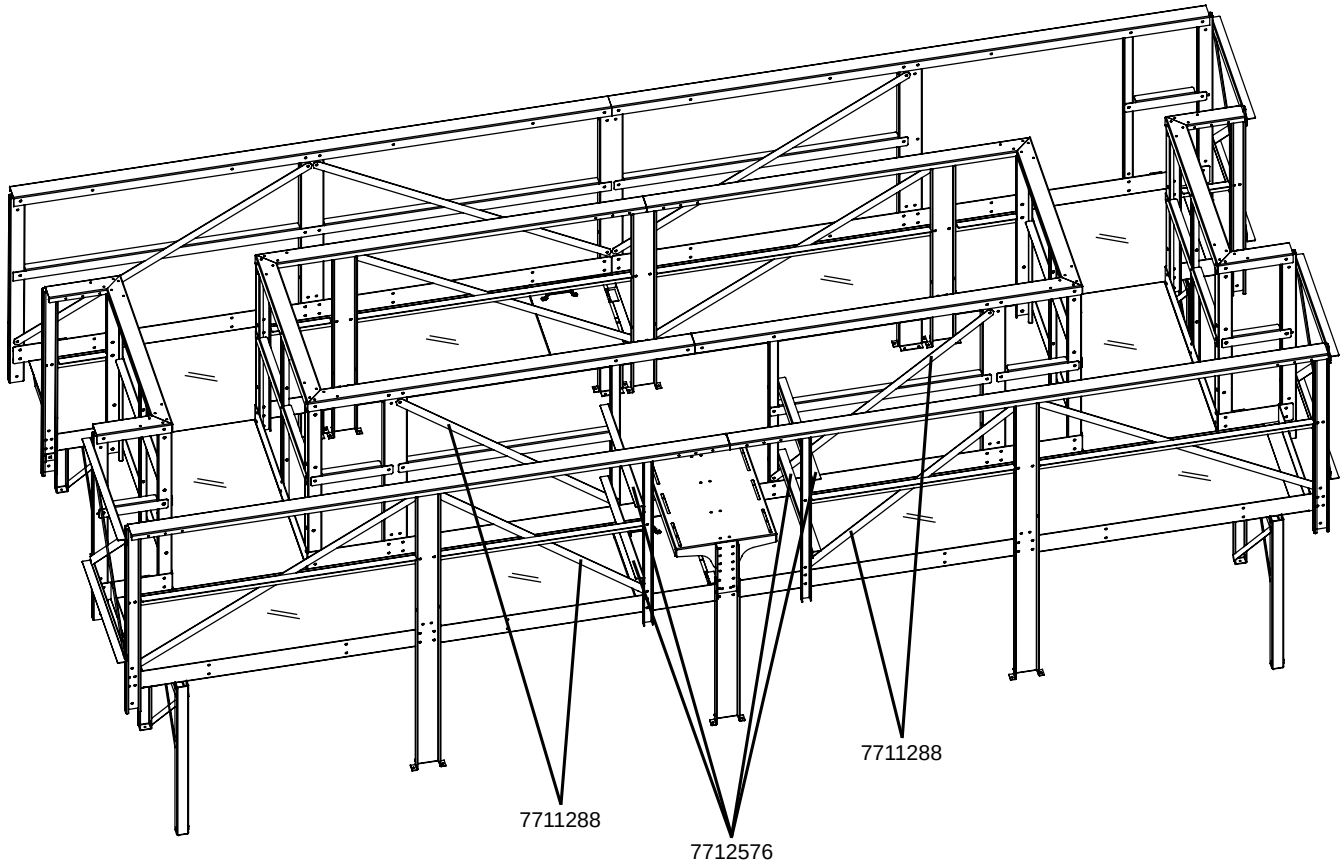
Part Number	Part Name	Quantity
7711287	37-3/4” Lower Handrail	4

Installing Diagonal Braces Next to the Motor Mount Base

Install diagonal braces next to the blower and motor mount base.

- Use 3/8” bolts, washers, and flange nuts.

Figure 92. Installing Diagonal Braces Next to the Blower and Motor Mount Base



Part Number	Part Name	Quantity
7712576	Handrail Cross Brace	4
7711288	Mid Diagonal Brace	4

4.7.2 24’ Blower Mount and Raised Blower Platform Installation

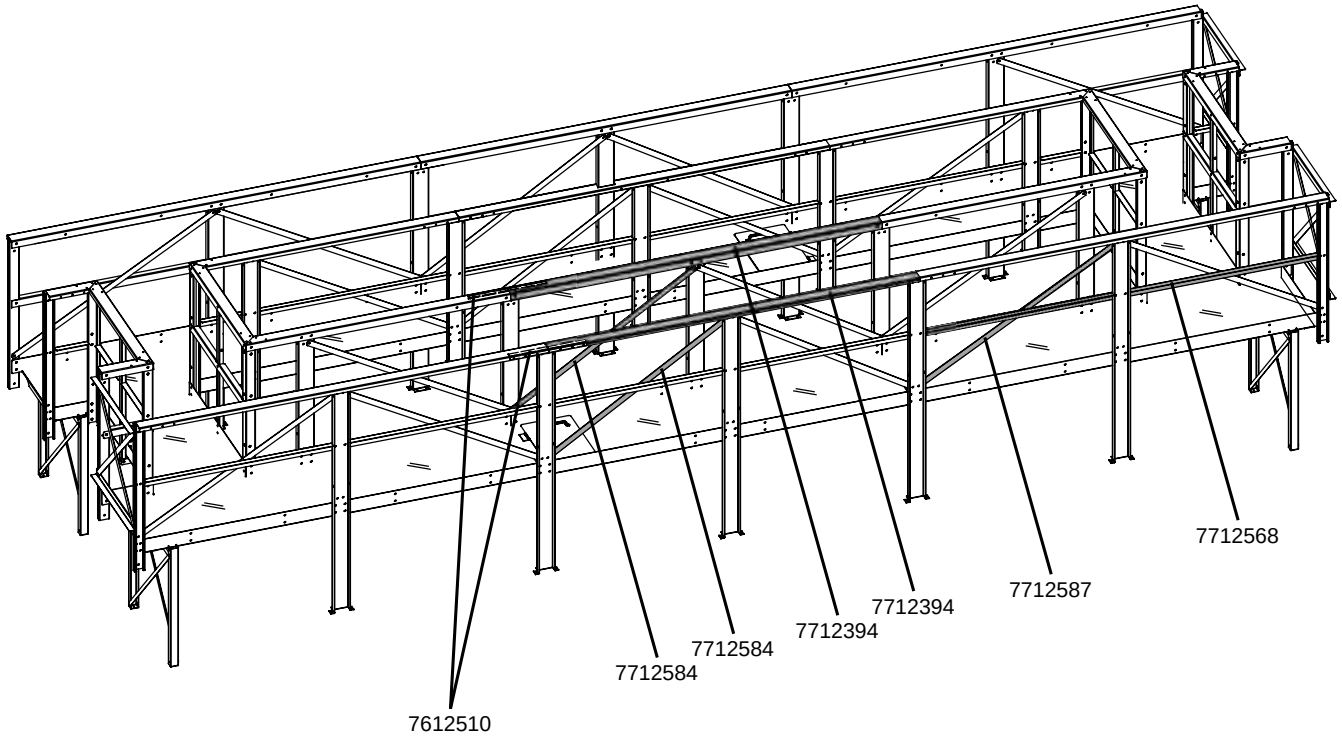
Removing Designated 24’ Catwalk Parts in Preparation for Mount Assembly

Remove the following 24’ catwalk parts and temporarily support the remaining catwalk assembly until the 24’ platform and blower mount assembly is installed.

Note

The following installation is a Cyclone Left Hand (LH) discharge installation. Components are in opposite orientation on a Cyclone Right Hand (RH) installation.

Figure 93. Removing the Designated Parts In Preparation for Platform and Mount Assembly

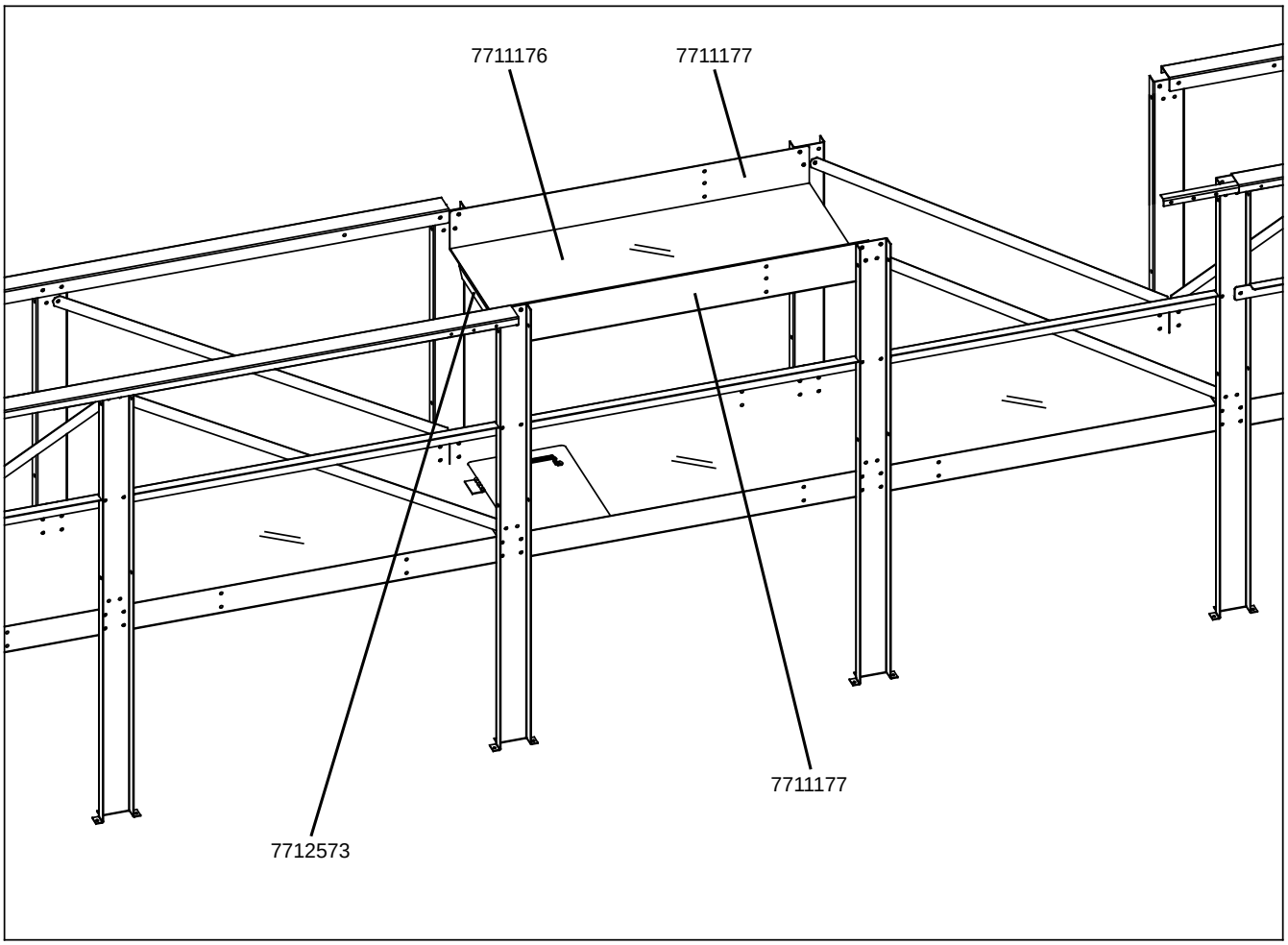


Part Number	Part Name	Quantity
7612510	Handrail Splice	2
7712394	96” Upper Middle Handrail	2
7712568	106” Lower Front Handrail	1
7712584	Side Mid Diagonal Brace	2
7712587	Front Side Diagonal Brace	1

Installing the 24’ Blower Platform Leg Uprights, Surface, and Toe Boards

1. Install the blower platform toe boards (7711177) to the uprights.
   - Use 3/8” bolts and flange nuts.
2. Install the walk surface stiffener (7712573) to the blower platform surface bottom end.
   - Use 1/4” flange head bolts and flange nuts.
3. Install the blower platform surface (7711176) to the platform toe boards (7711177).
   - Use 1/4” flange head bolts and flange nuts.

Figure 94. Installing the 24’ Blower Platform Toe Boards and Surface



Part Number	Part Name	Quantity
7712573	Walk Surface Stiffener	1
7711176	Blower Platform Surface	1
7711177	Blower Platform Toe Board	2

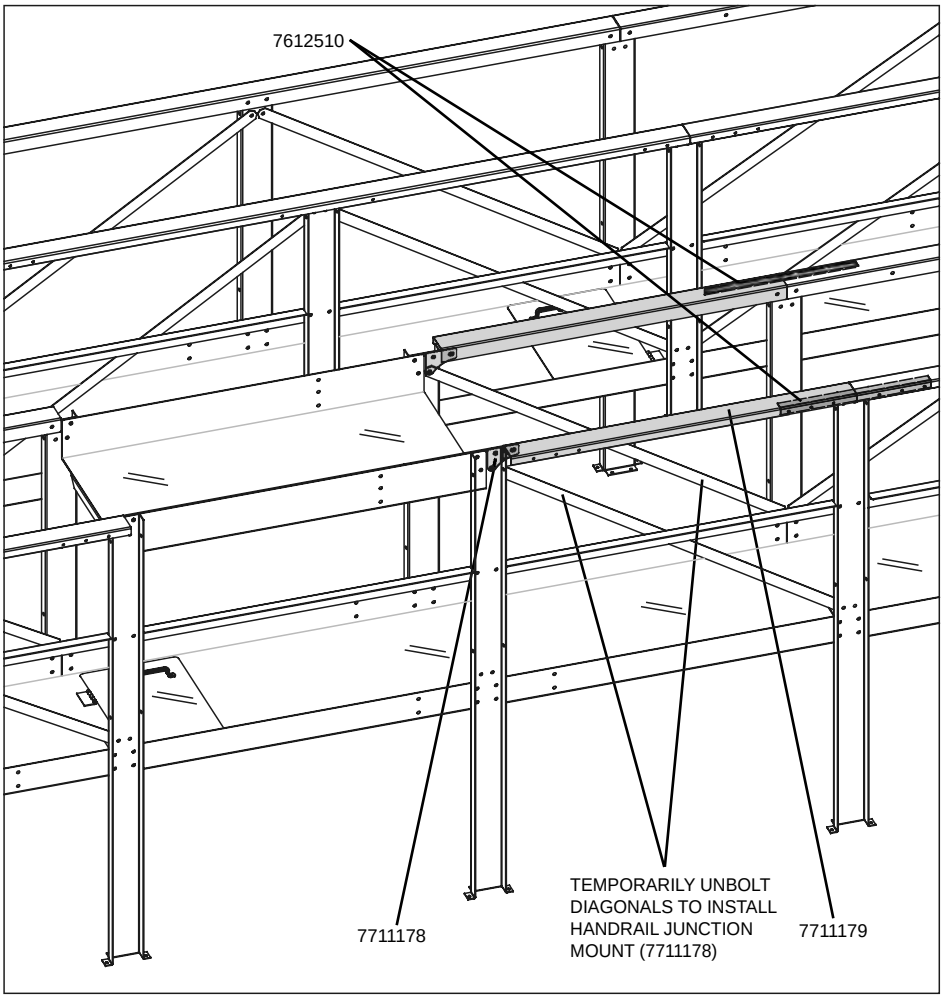
Installing Short Rails Next to Blower Platform Toe Boards

1. First unattach the catwalk diagonal braces at the location 45-3/4” handrails and handrail junction mounts are to be installed.
2. Install the handrail junction mounts (7711178) to the uprights.
   - Use 3/8” bolts and 3/8” flange nuts.
3. Install the 45-3/4” handrails (7711179) to handrail junction mounts (7711178) and the pre-installed handrail splices (7612510) filling in the remaining handrail gaps.
   - Use 3/8” bolts and 3/8” flange nuts.

   Note

   The rail splices use 1/4" flange nuts and flange-head bolts.
4. Repeat the above three steps for both the inner and outer handrail.

Figure 95. Installing the Short Rails Next to the Blower Platform Toe Boards

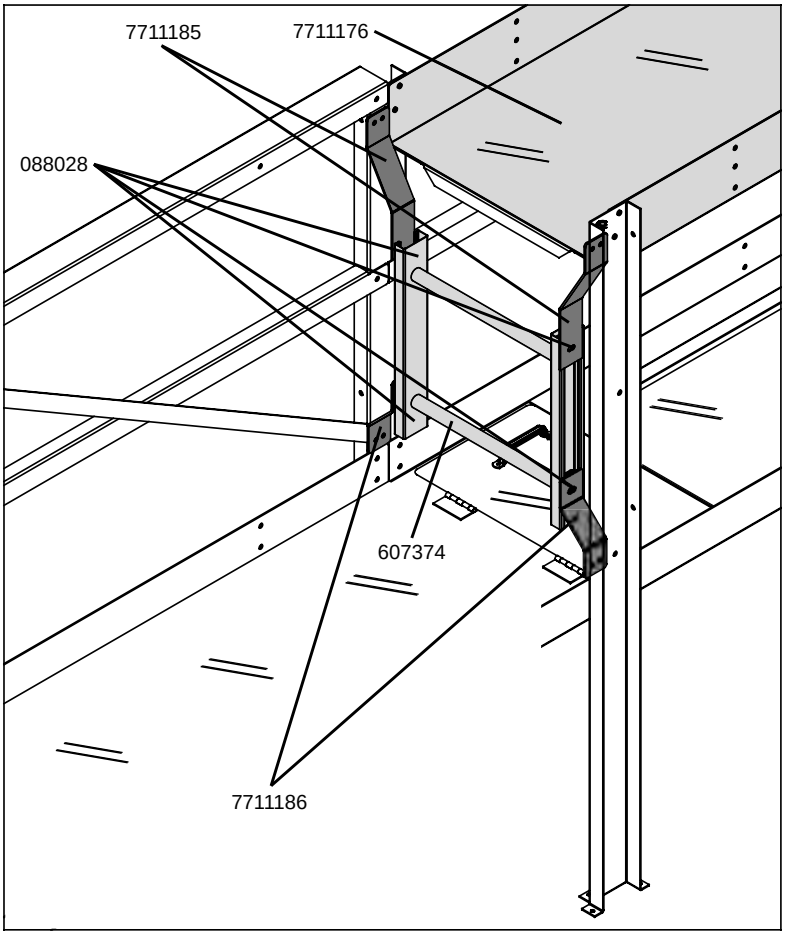


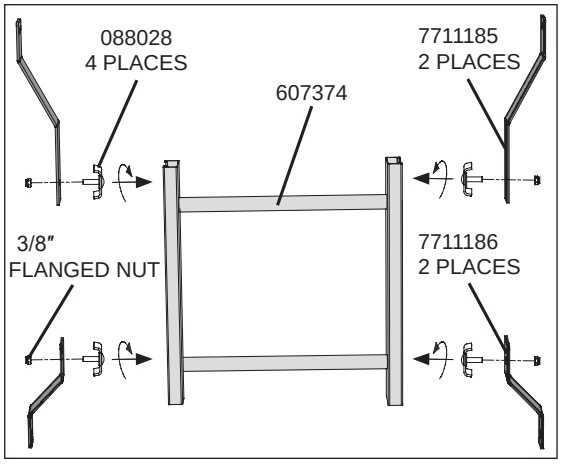
Part Number	Part Name	Quantity
7711178	Handrail Junction Mount	2
7711179	45-3/4” Handrail	2

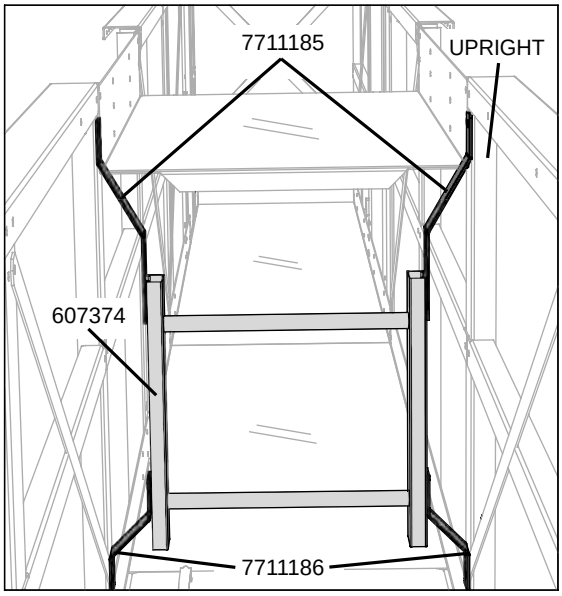
Installing the 24’ Assembly Ladder to the Blower Platform Entry

1. Install the ladder brackets at the front of the blower platform as shown in the following figure.
   - Use 3/8” bolts, washers, and flanged nuts.
2. Install the ladder to the ladder brackets.
   - Use 3/8” ladder clip & bolt assemblies and 3/8” flanged nuts.

Figure 96. Installing the 24’ Assembly Ladder to the Blower Platform Entry







Note

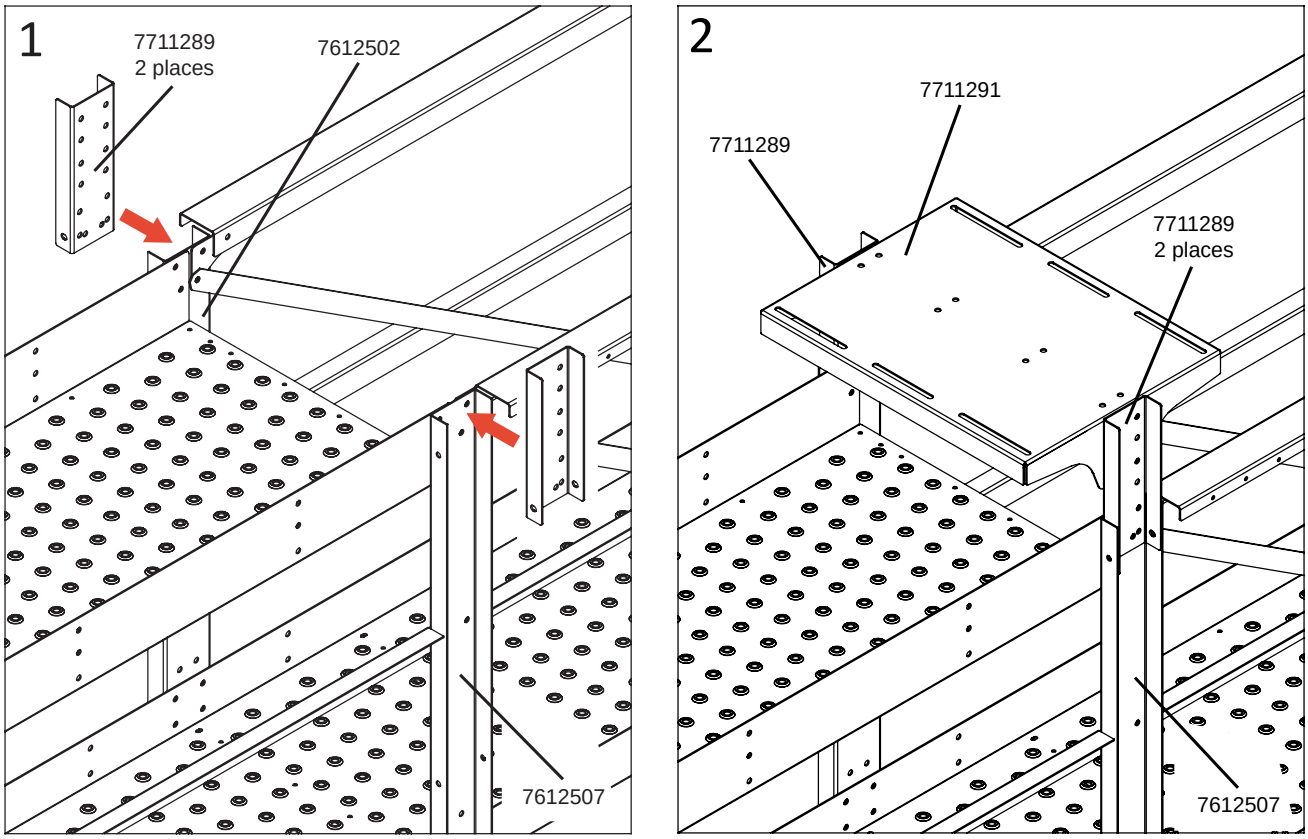
- In order to install the 8” blower platform ladder supports, first unbolt the diagonal braces at those places.
- Then, install the diagonal braces and 8” blower platform ladder supports at these places since both parts share the same bolt hole.

Part Number	Part Name	Quantity
088028	Ladder Clip and Bolt Assembly	4
607374	18” Ladder Section	1
7711185	13-1/4” Blower Platform Ladder Support	2
7711186	8” Blower Platform Ladder Support	2

Installing the 24’ Motor Mount Base Onto the Catwalk Uprights

1. Install the motor mount uprights (7711289) to the 24’ blower mount inner and outer leg uprights (7612507).
   - Use 3/8” bolts, washers, and flanged nuts.
2. Install the motor mount base (7711291) onto the motor mount uprights (7711289).
   - Use 3/8” bolts, washers, and flanged nuts.

Figure 97. Installing the 24’ Blower and Motor Mount Base to the Leg Uprights

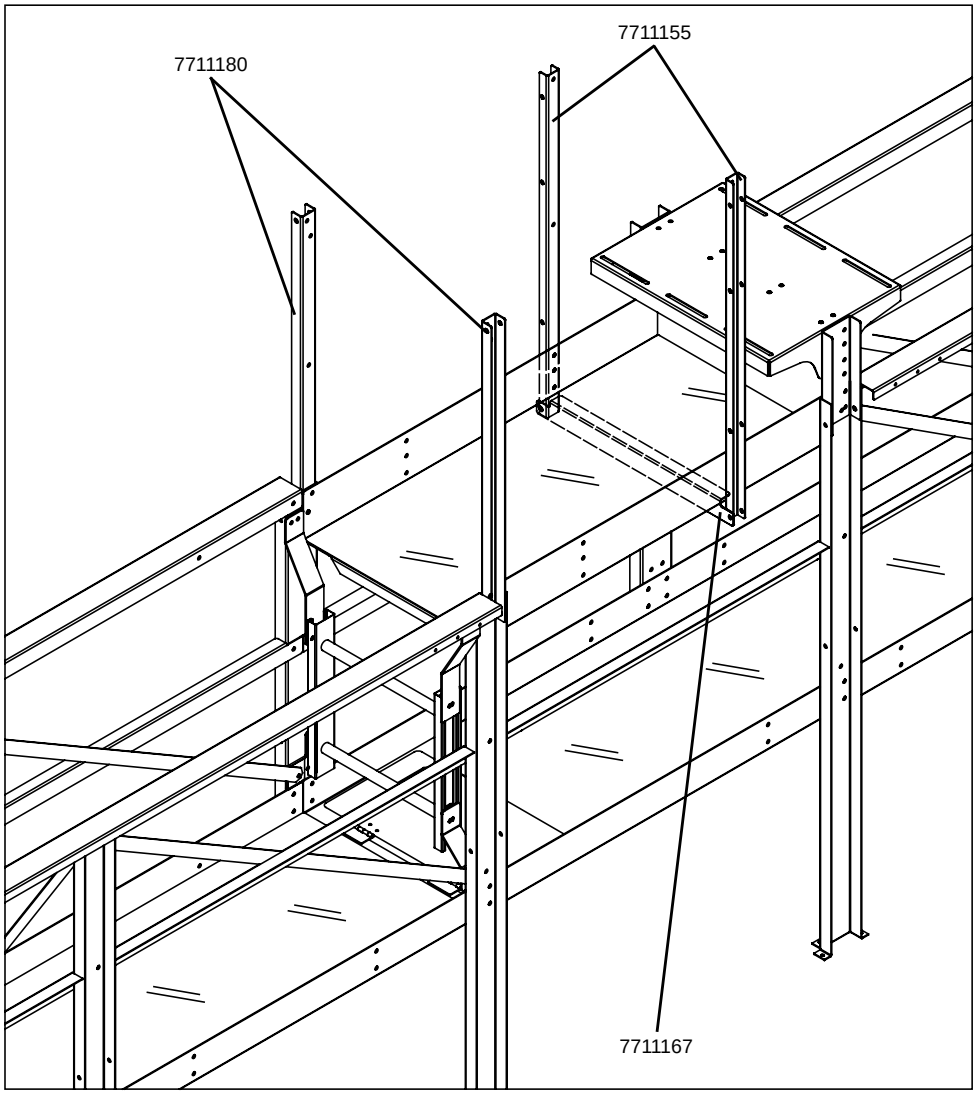


Part Number	Part Name	Quantity
7711289	Motor Mount Upright	2
7711291	17” Blower and Motor Mount Base	1

Installing the 24’ Blower Platform Uprights

1. Install the blower platform uprights (7711180 and 7711155) to the blower platform toe boards.
   - Use 3/8” bolts, washers, and flange nuts.
2. Install the handrail support brace (7711167) to the bottom of the mid uprights (7711155).
   - Use 3/8” bolts, washers, and flange nuts.

Figure 98. Installing the 24’ Blower Platform Uprights



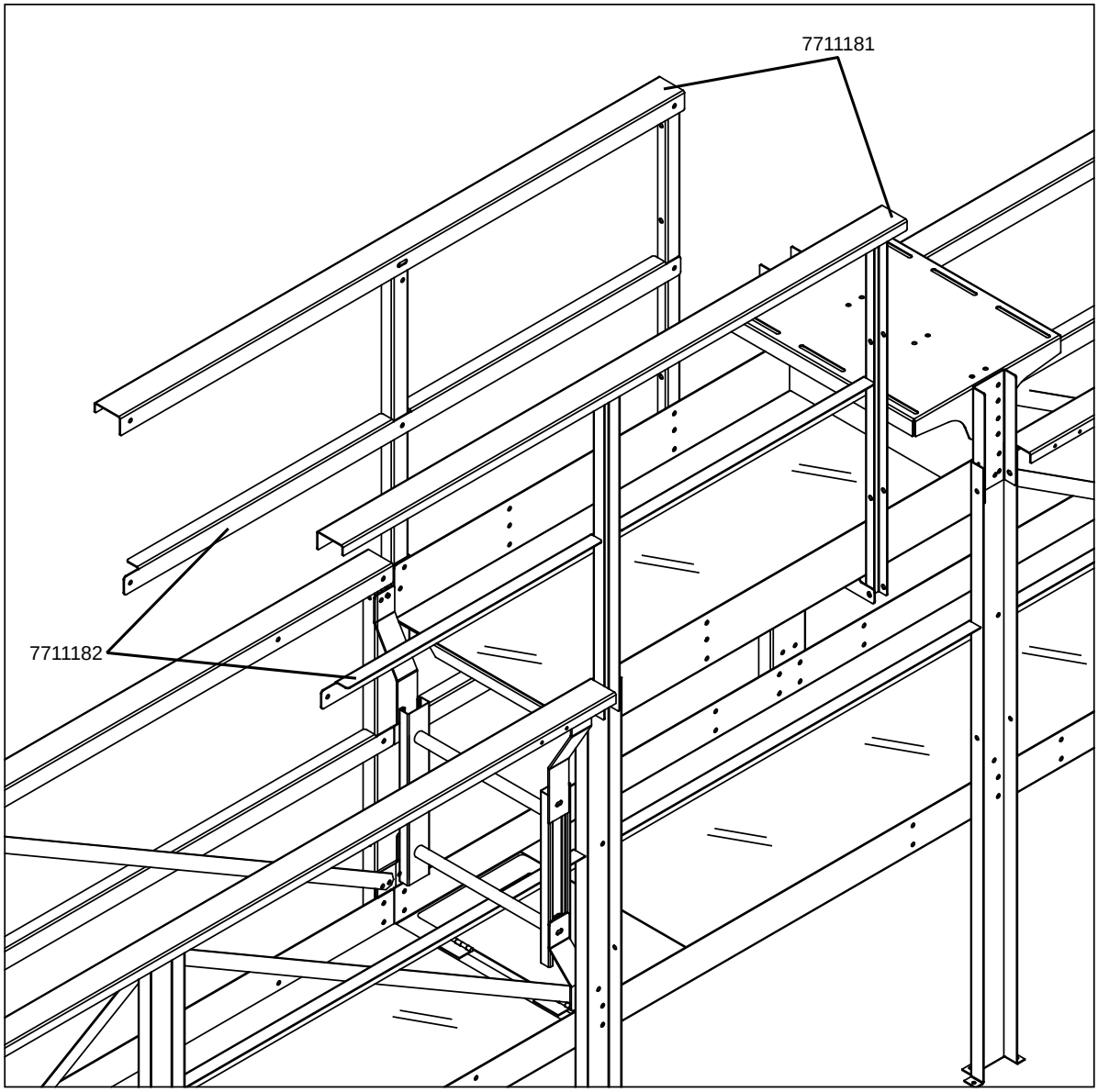
Part Number	Part Name	Quantity
7711155	Mid Upright	2
7711167	Handrail Support Brace	1
7711180	Work Platform Upright	2

Installing the 24’ Blower Platform Middle and Top Rails

Install the blower platform middle (7711182) and 68-1/2” upper handrails (7711181) letting the ends hang free off the platform.

- Use 3/8” bolts, washers, and flange nuts.

Figure 99. Installing the Platform Middle and Top Rails



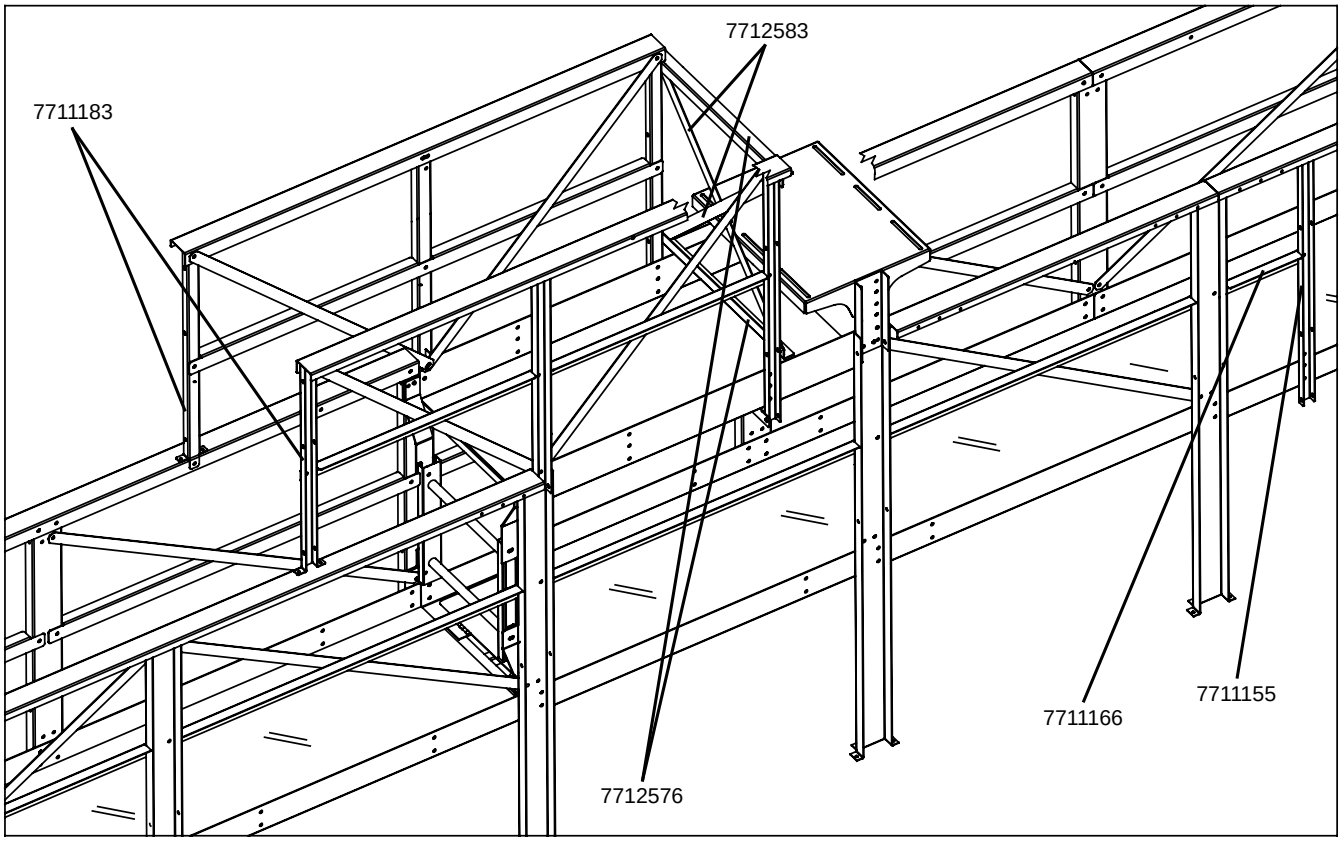
Part Number	Part Name	Quantity
7711181	68-1/2” Upper Handrail	2
7711182	Upper Blower Platform Lower Handrail	2

Installing the 24’ Assembly Final Bracing

1. Install the end braces at the motor mount base platform end.
   - Use 3/8” bolts, washers, and flange nuts.
2. Install the remaining uprights and 13” lower handrail (7711166).
3. Install the 24’ end handrail supports (7711183) to the top handrails.
   - Use 3/8” bolts, washers, flange nuts, and #14 sheet metal screws.

   Note
   See the detail drawings on the next page.

Figure 100. Installing the Platform End Braces



Part Number	Part Name	Quantity
7711155	Mid Upright	1
7711166	13” Lower Handrail	1
7711183	24’ work platform end upright	2
7712576	Handrail Cross Brace	2
7712583	End Diagonal Brace	2

Figure 101. Installing the Braces at the Motor Mount Base Platform End

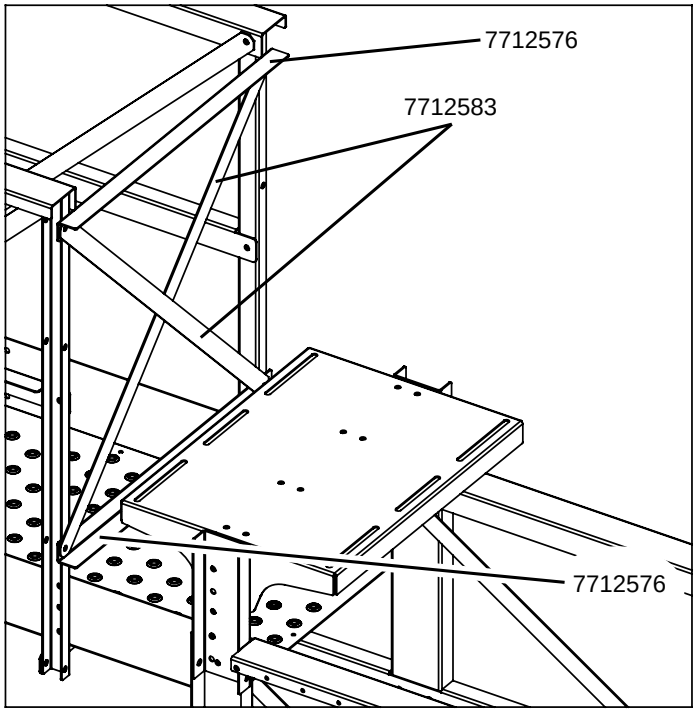
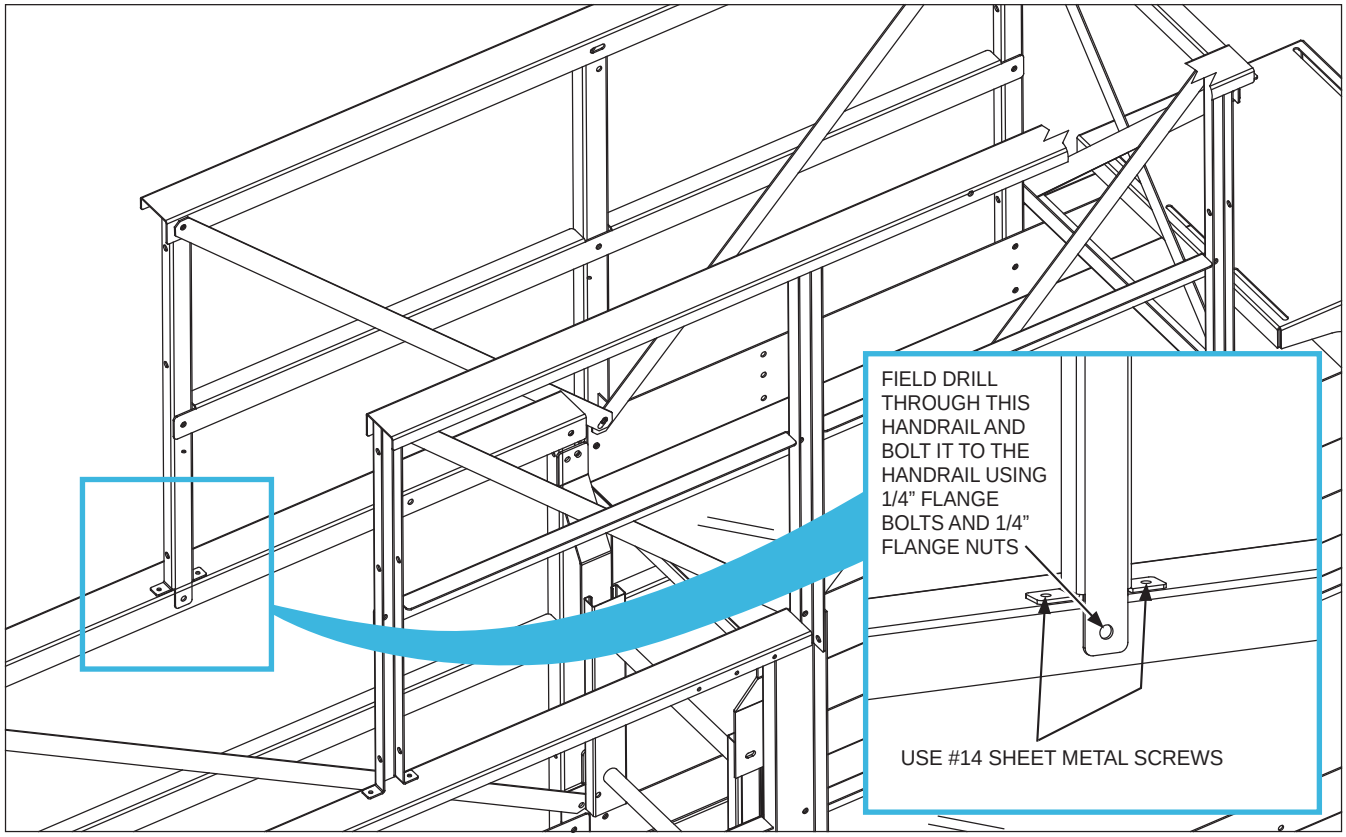


Figure 102. Installing the End Handrail Supports



4.7.3 32’ Blower Mount and Raised Blower Platform Installation

Removing Designated 32’ Catwalk Parts in Preparation for Mount Assembly

Remove the following 32’ catwalk parts and temporarily support the remaining catwalk assembly until the 32’ platform and blower mount assembly is installed.

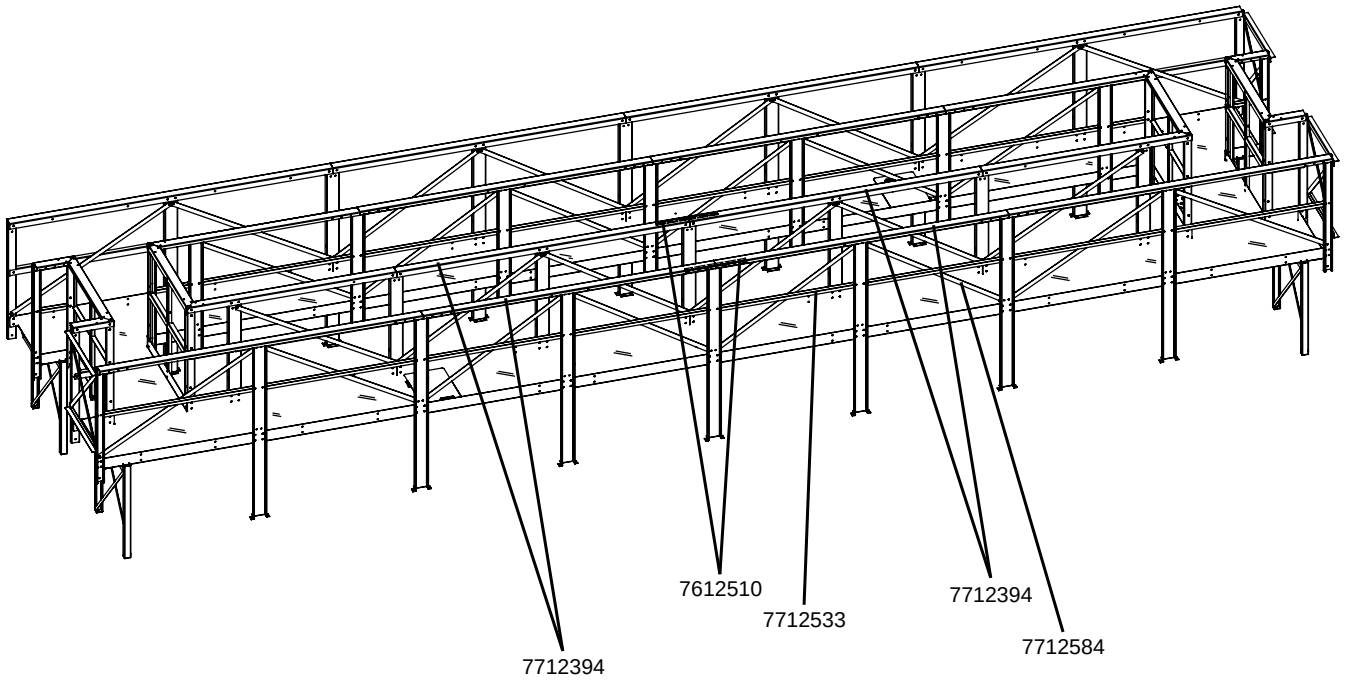
Note

These parts aren’t needed and will be replaced with the 32’ platform and blower mount assembly.

Note

The following installation is a Cyclone Left Hand (LH) discharge installation. Components are in opposite orientation on a Cyclone Right Hand (RH) installation.

Figure 103. Removing Parts in Preparation for Installing the 32’ Platform and Mount Assembly

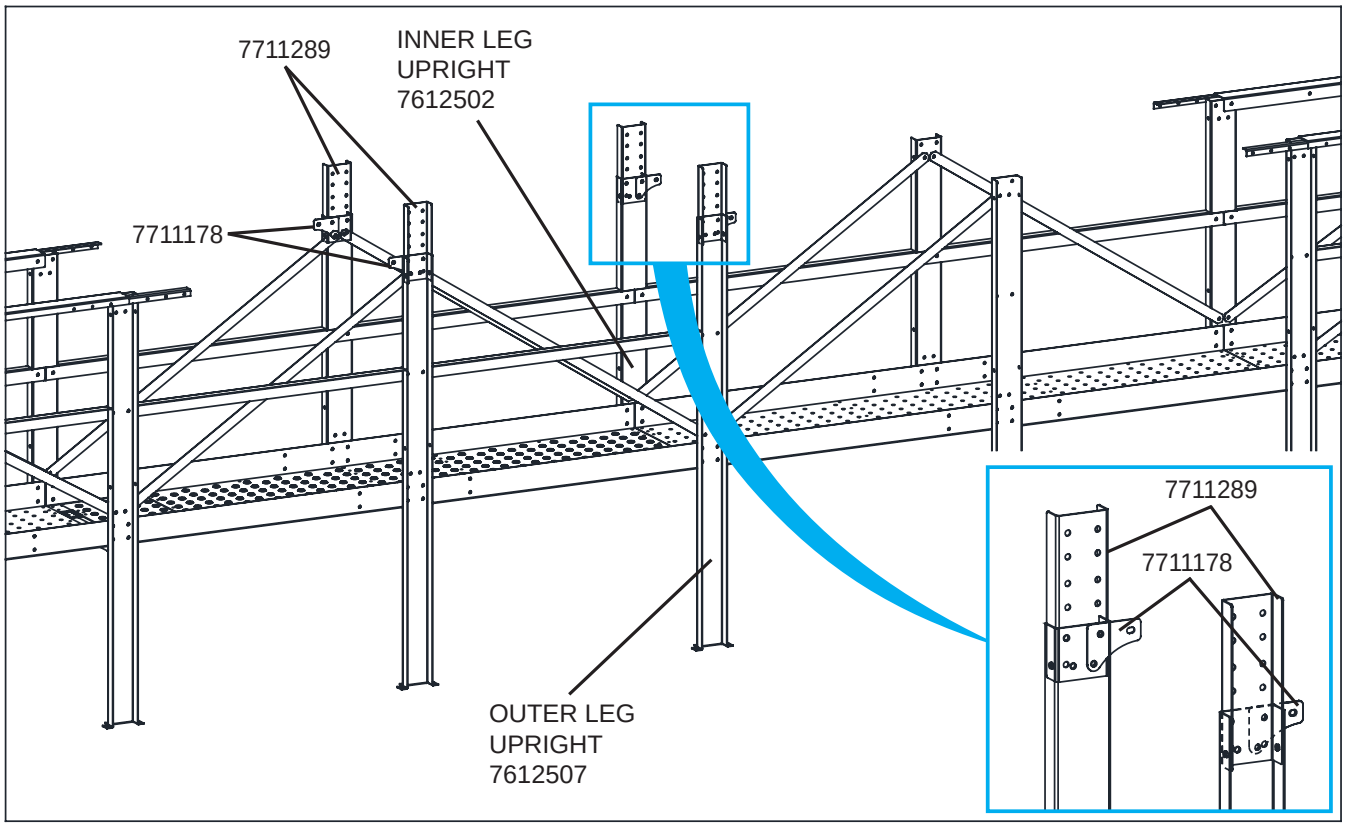


Part Number	Part Name	Quantity
7712533	96” Lower Middle Handrail	1
7712394	96” Upper Middle Handrail	4
7612510	Handrail Splice	2
7712584	Side Mid Diagonal Brace	1

Installing the 32’ Replacement Top Rails and Connector Uprights

1. Install the Connector Upright (7711289) and the handrail junction mounts (7711178) to the four uprights the blower mount platform will be installed to.
    - Use 3/8” bolts, washers, and flange nuts.

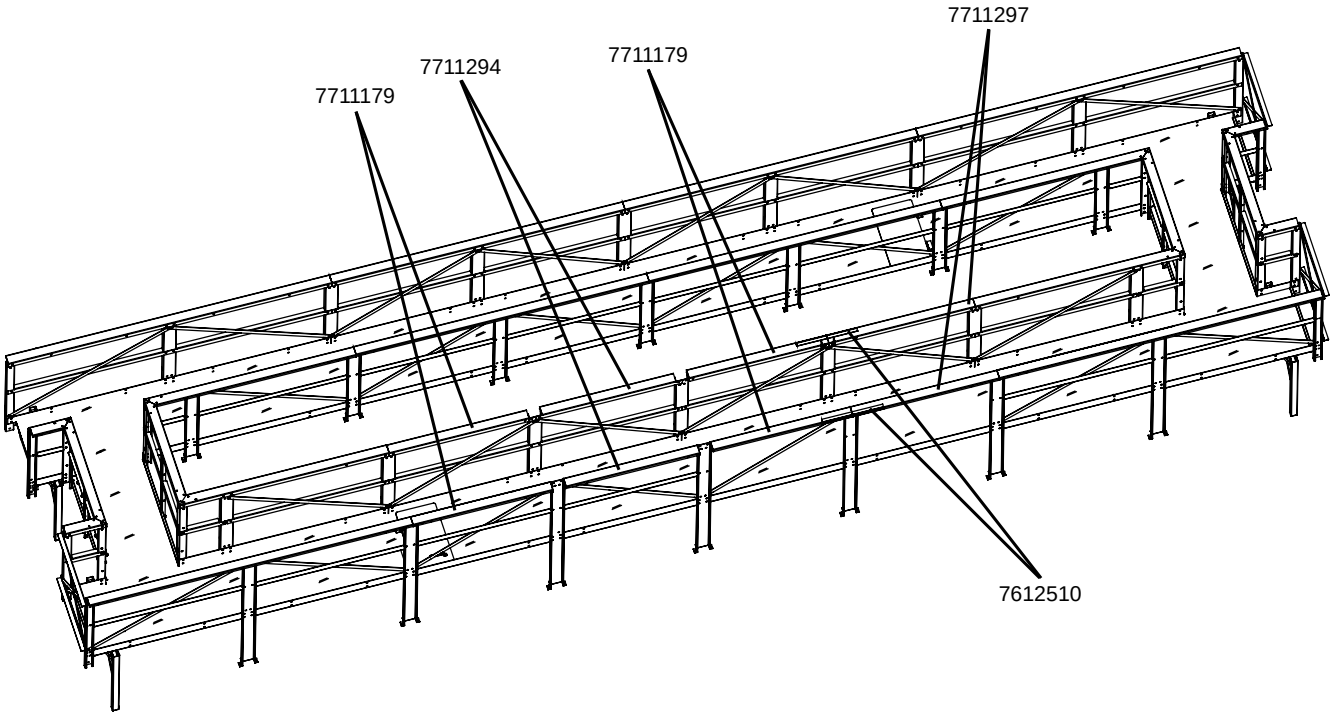
Figure 104. Installing the Connector Uprights and Handrail Junction Mounts



Part Number	Part Name	Quantity
7711178	Handrail Junction Mount	4
7711289	Connector Upright	4

2. Install the 45-1/2” notched handrails (7711294) and 45-1/2" Handrail (7711297) to the inner leg upright (7612502) and the outer leg upright (7612507).
   - Use 3/8” bolts, washers, and flange nuts.
3. Install the 45-3/4” handrails (7711179) to uprights and to handrail junction mounts (7711178 which was installed on the previous page) and to the handrail splices (7612510).
   - Use 1/4” flange head bolts and flange nuts.

Figure 105. Installing the Replacement Top Rails and Handrail Splices

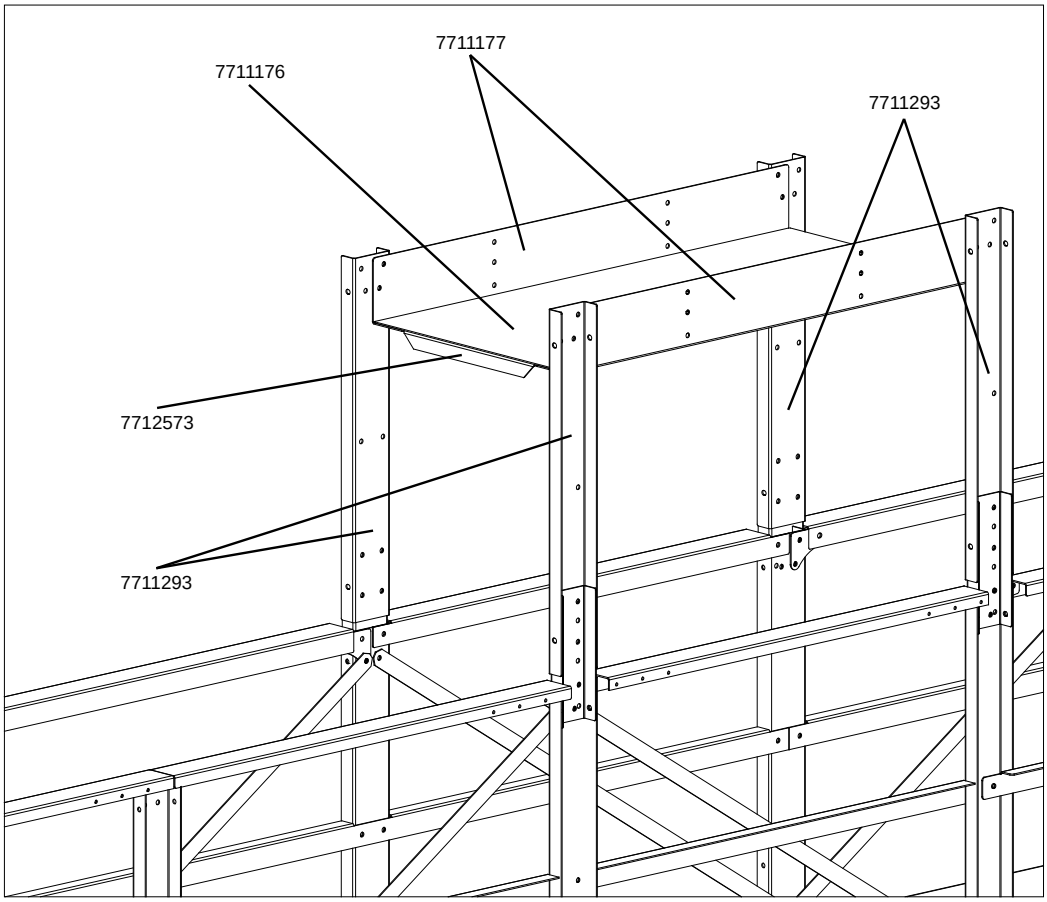


Part Number	Part Name	Quantity
7612510	Handrail Splice	2
7711179	45-3/4” Handrail	4
7711294	45-1/2” Notched Handrail	2
7711297	45-1/2” Handrail	2

Installing the 32’ Blower Platform Leg Uprights, Surface, and Toe Boards

1. Install the 32’ upright extenders (7711293) to the blower platform location leg uprights.
   - Use 3/8” bolts, washers and flange nuts.
2. Install the upper blower platform toe boards (7711177) to the 32’ upright extenders (7711293).
   - Use 3/8” bolts, washers and flange nuts.
3. Install the walk surface stiffener (7712573) to the blower platform surface (7711176).
   - Use 1/4” flange head bolts and flange nuts.
4. Install the blower platform surface (7711176) to the toe boards.
   - Use 1/4” flange head bolts and flange nuts.

Figure 106. Installing the Blower Platform Leg Uprights, Surface, and Toe Boards

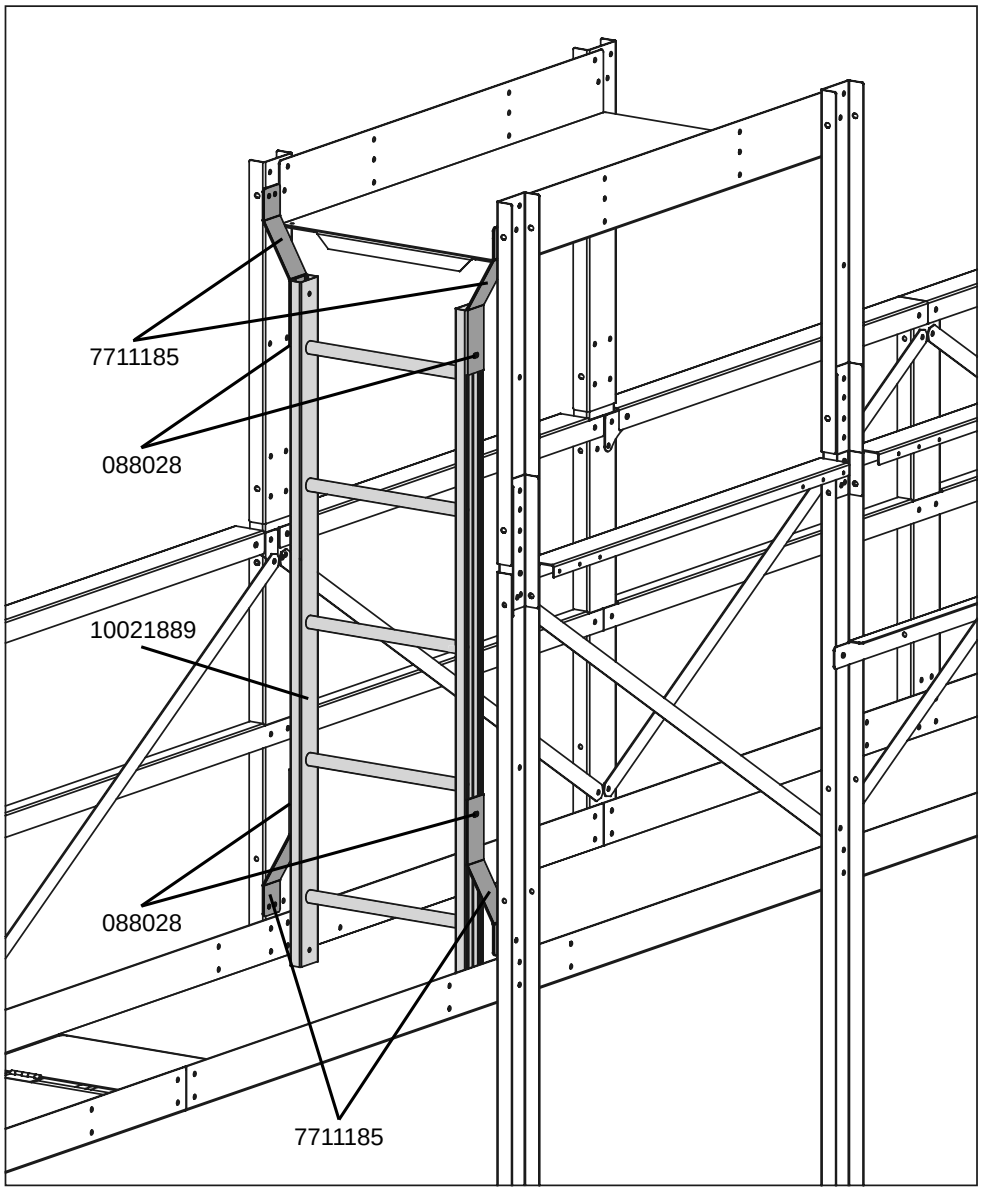


Part Number	Part Name	Quantity
7711176	Blower Platform Surface	1
7711177	Upper Blower Platform Toe-Board	2
7711293	32’ Upright Extender	4
7712573	Walk Surface Stiffener	1

Installing the 32’ Assembly Ladder to the Blower Platform Entry

1. Install the ladder brackets at the front of the blower platform as shown in the following figure.
   - Use 3/8” bolts, washers, and flanged nuts.
2. Install the ladder to the ladder brackets.
   - Use 3/8” ladder clip & bolt assemblies, and 3/8” flanged nuts.

Figure 107. Installing the Ladder at the Blower Platform Entry

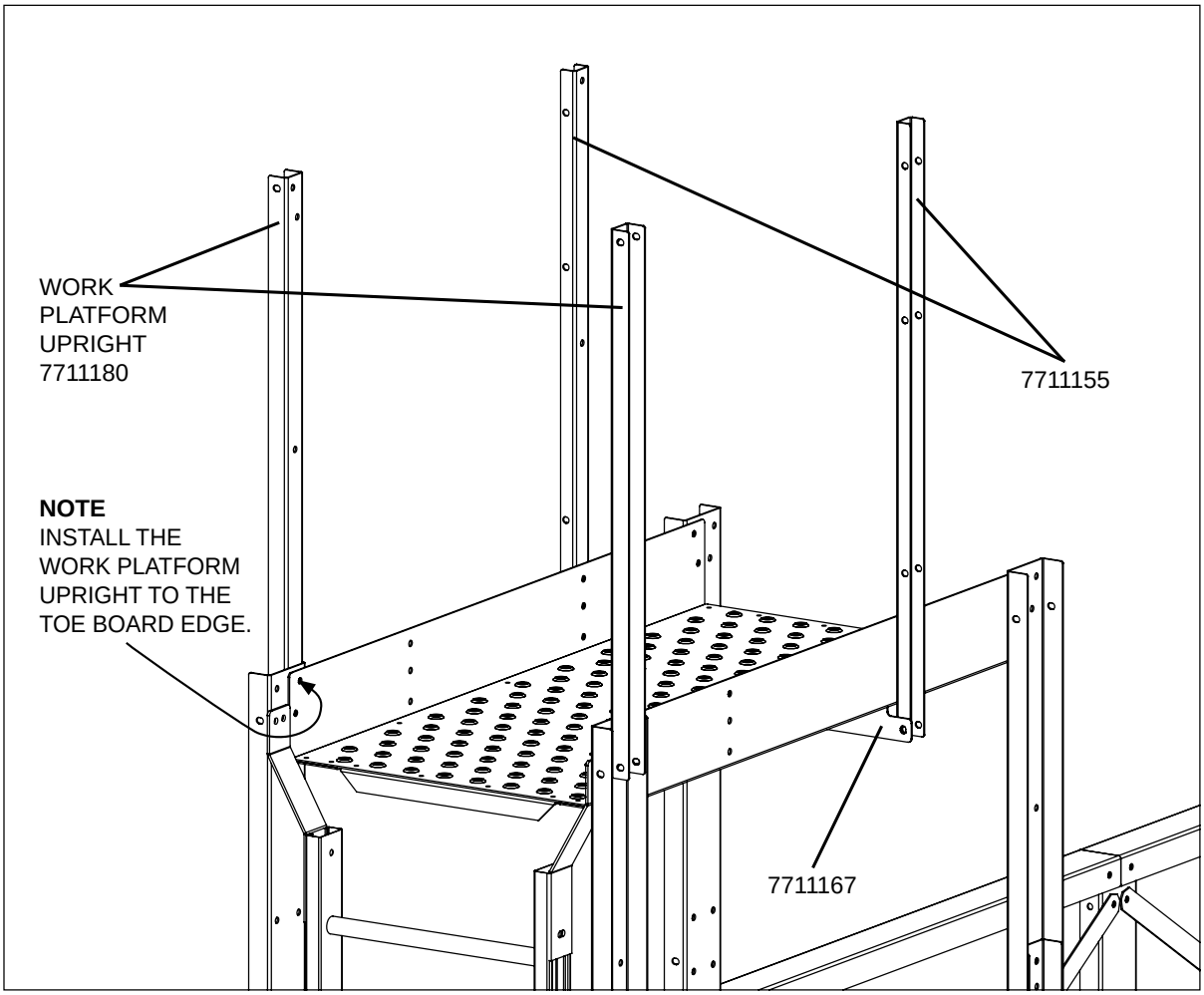


Part Number	Part Name	Quantity
088028	Ladder Clip and Bolt Assembly	4
7711185	13-1/4” Blower Platform Ladder Support	4
10021889	5’ Ladder Section	1

Installing the 32’ Blower Platform Uprights

1. Install the blower platform uprights (7711180 and 7711155) to the blower platform toe boards (7711177).
   - Use 3/8” bolts, washers, and flange nuts.
2. Attach the handrail support brace (7711167) to the bottom of the mid uprights (7711155).
   - Use 3/8” bolts, washers, and flange nuts.

Figure 108. Installing the Blower Platform Uprights

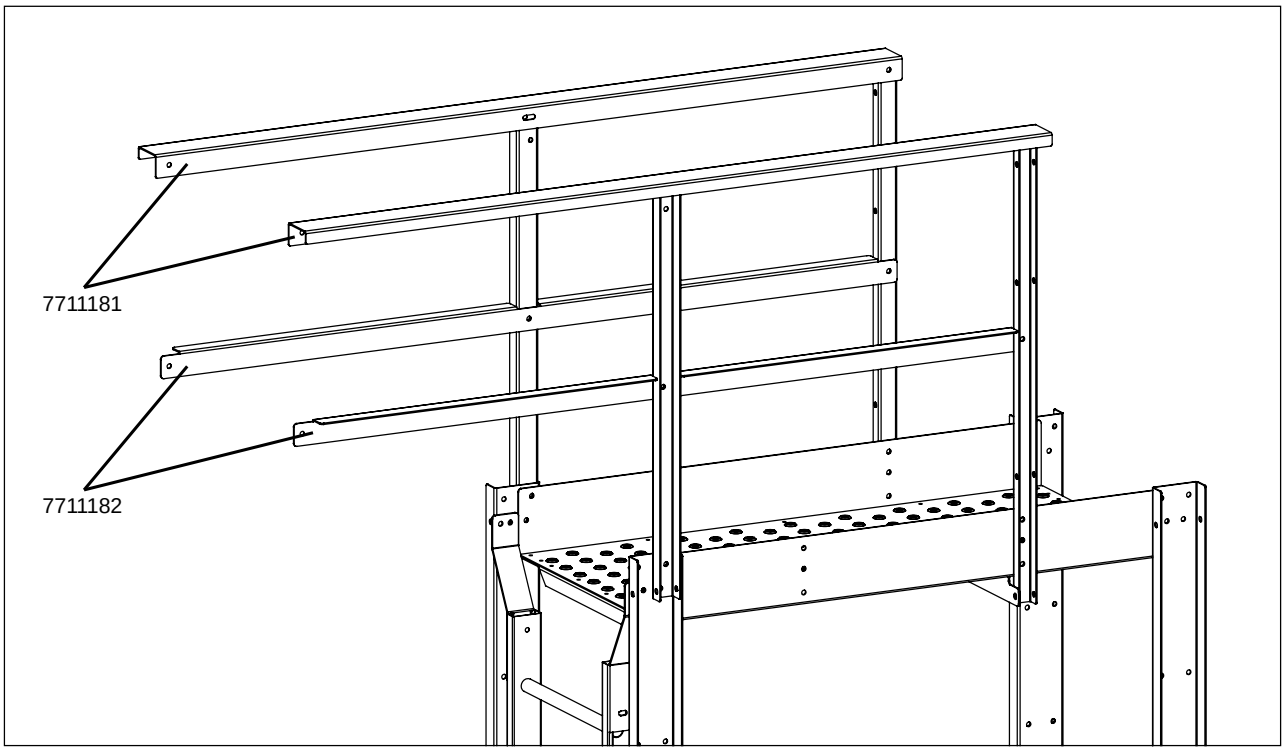


Part Number	Part Name	Quantity
7711155	Mid Upright	2
7711167	Handrail Support Brace	1
7711180	Work Platform Upright	2

Installing the 32’ Blower Platform Middle and Top Rails

1. Install blower platform lower handrails (7711182).
   - Use 3/8” bolts, washers, and flange nuts.
2. Install 68-1/2” upper handrails (7711181).
   - Use 3/8” bolts, washers, and flange nuts.

Figure 109. Installing the Blower Platform Middle and Top Rails

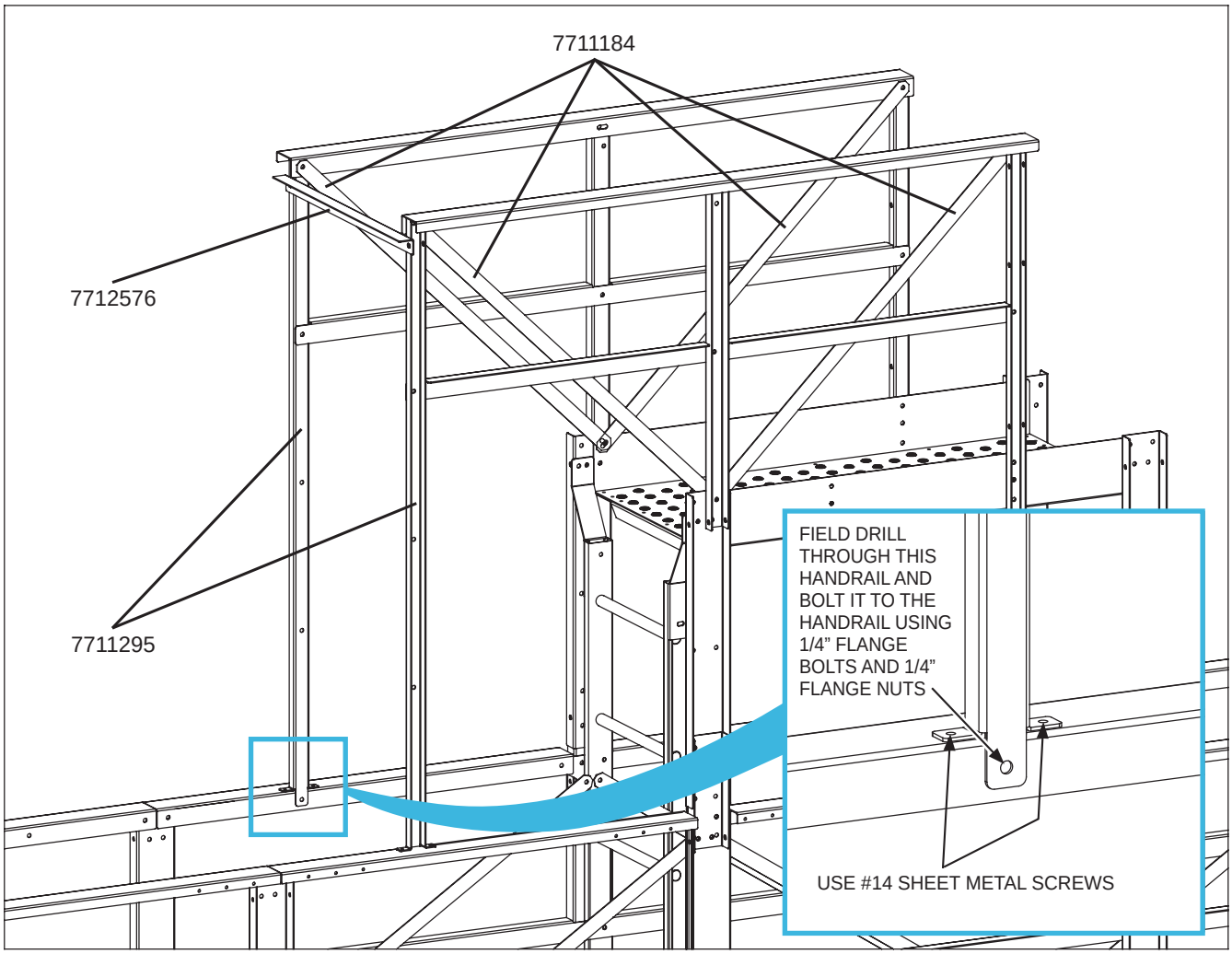


Part Number	Part Name	Quantity
7711181	68-1/2” Upper Handrail	2
7711182	Blower Platform Lower Handrail	2

Installing the 32’ End Handrail Supports and Diagonal Braces

1. Install 47-1/2” diagonal braces (7711184) to the blower platform uprights.
   - Use 3/8” bolts, washers, and flange nuts.
2. Install the 32’ blower platform end handrail supports (7711295) to the 45-3/4” handrails (7711179).
   - Use #14 sheet metal screws (003485).

Figure 110. Installing the Handrail Supports and Diagonal Braces



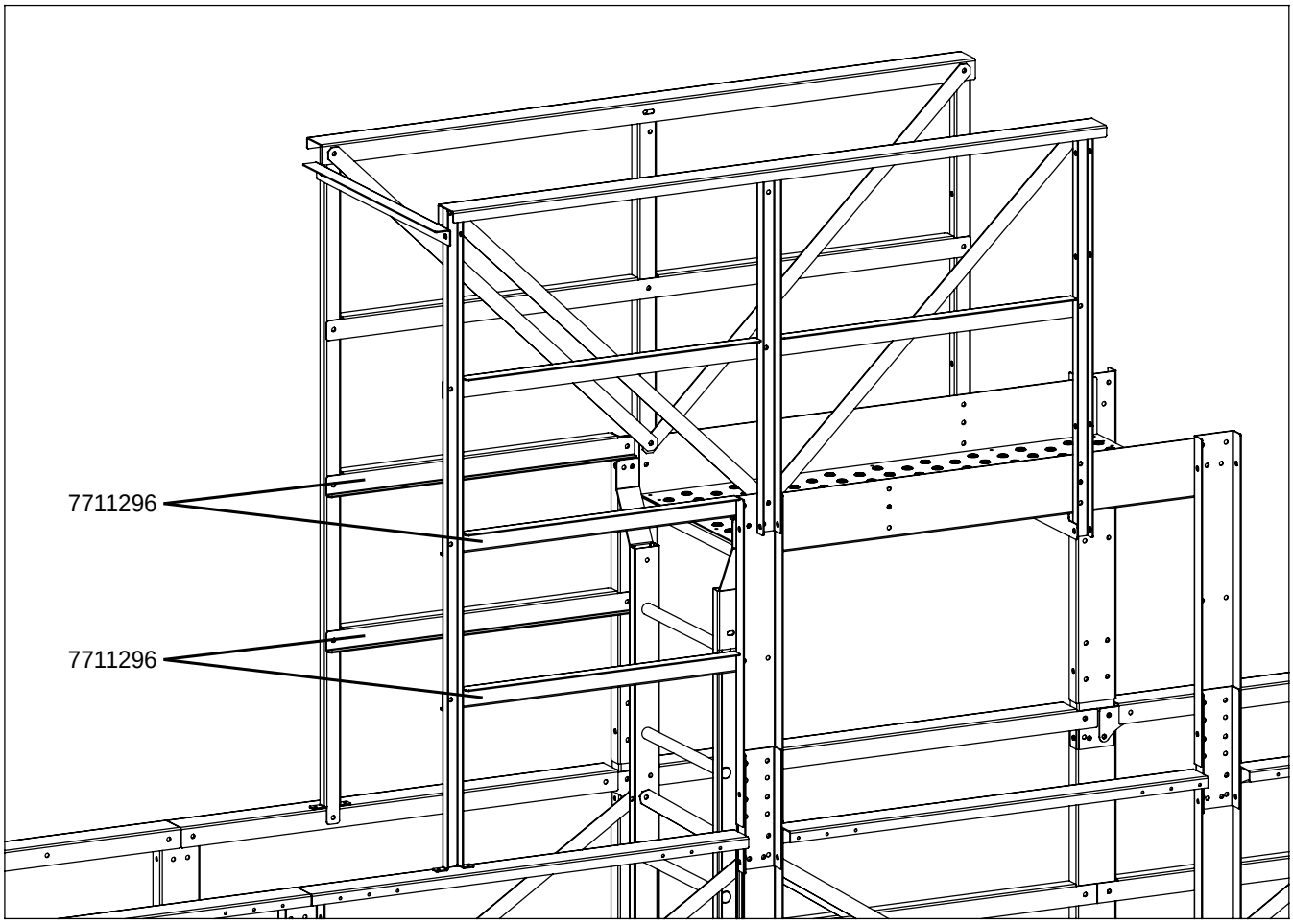
Part Number	Part Name	Quantity
7711184	47-1/2” Diagonal Brace	4
7711295	32’ Blower Platform End Handrail Support	2
7712576	Handrail Cross Brace	1

Installing Ladder Cage Supports

Install the 32’ blower platform ladder cage supports (7711296) between the 32’ blower platform end handrail supports (77111295) and the uprights.

- Use 3/8” bolts, washers, and flange nuts.

Figure 111. Installing the Ladder Cage Supports

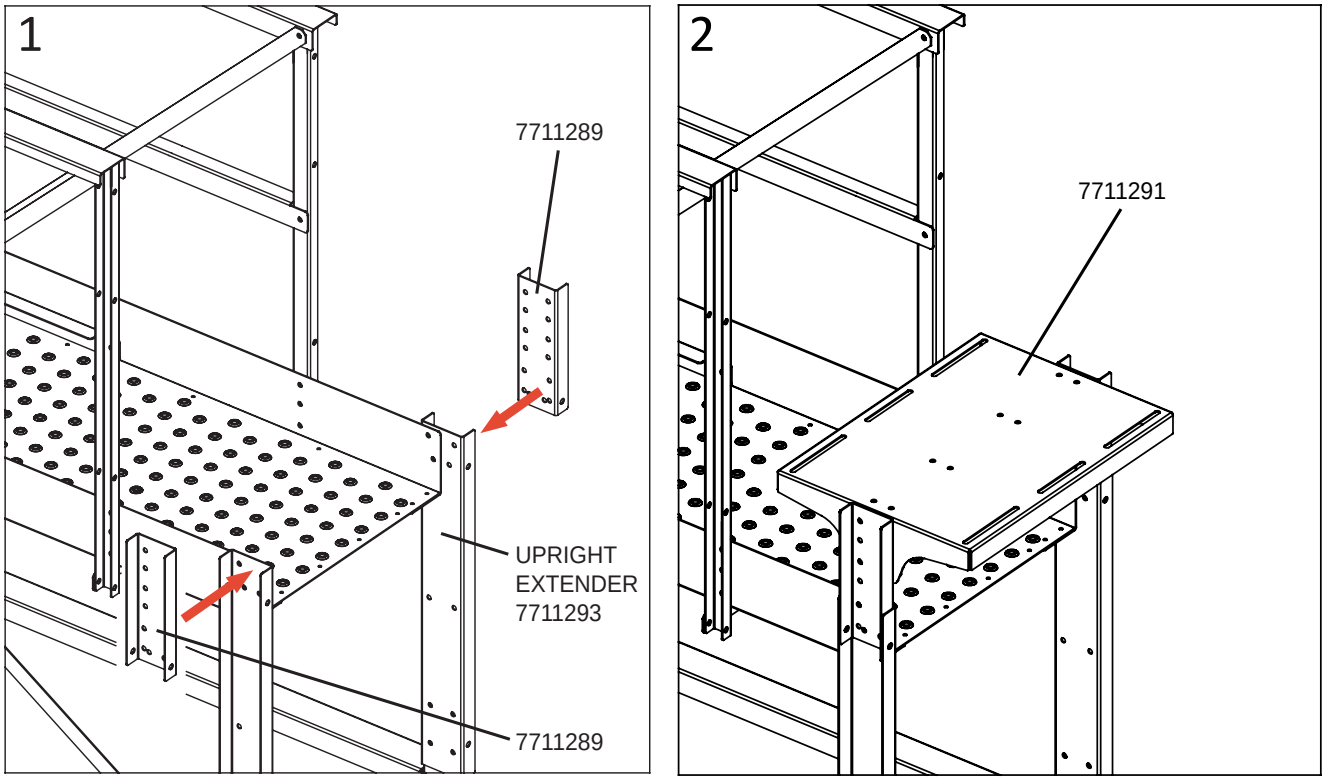


Part Number	Part Name	Quantity
7711296	32’ Blower Platform Ladder Cage Support	4

Installing the 32’ Motor Mount Uprights and the Motor Mount Base

1. Install the motor mount uprights (7711289) onto the 32’ upright extenders (7711293).
   - Use 3/8” bolts, washers, and flanged nuts.
2. Install the 17” blower and motor mount base (7711291) onto the motor mount uprights (7711289).
   - Use 3/8” bolts, washers, and flanged nuts.

Figure 112. Installing the 32’ Blower and Motor Mount Base to the Motor Mount Uprights



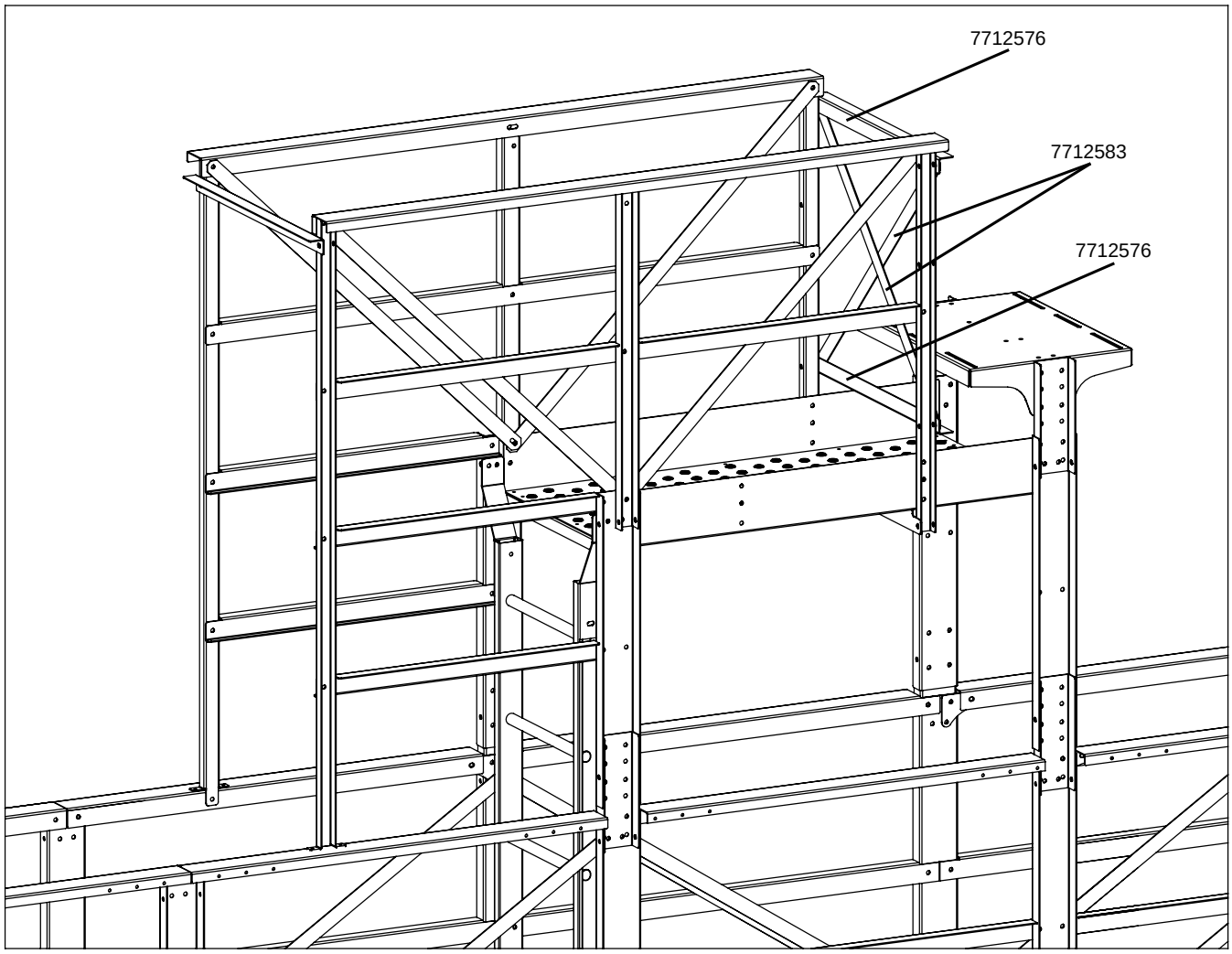
Part Number	Part Name	Quantity
7711289	Motor Mount Upright	2
7711291	17” Blower and Motor Mount Base	1

Installing the 32’ Assembly Final Bracing

Install the end braces at the blower platform end.

- Use 3/8” bolts, washers, and flange nuts.

Figure 113. Installing the Platform End Braces

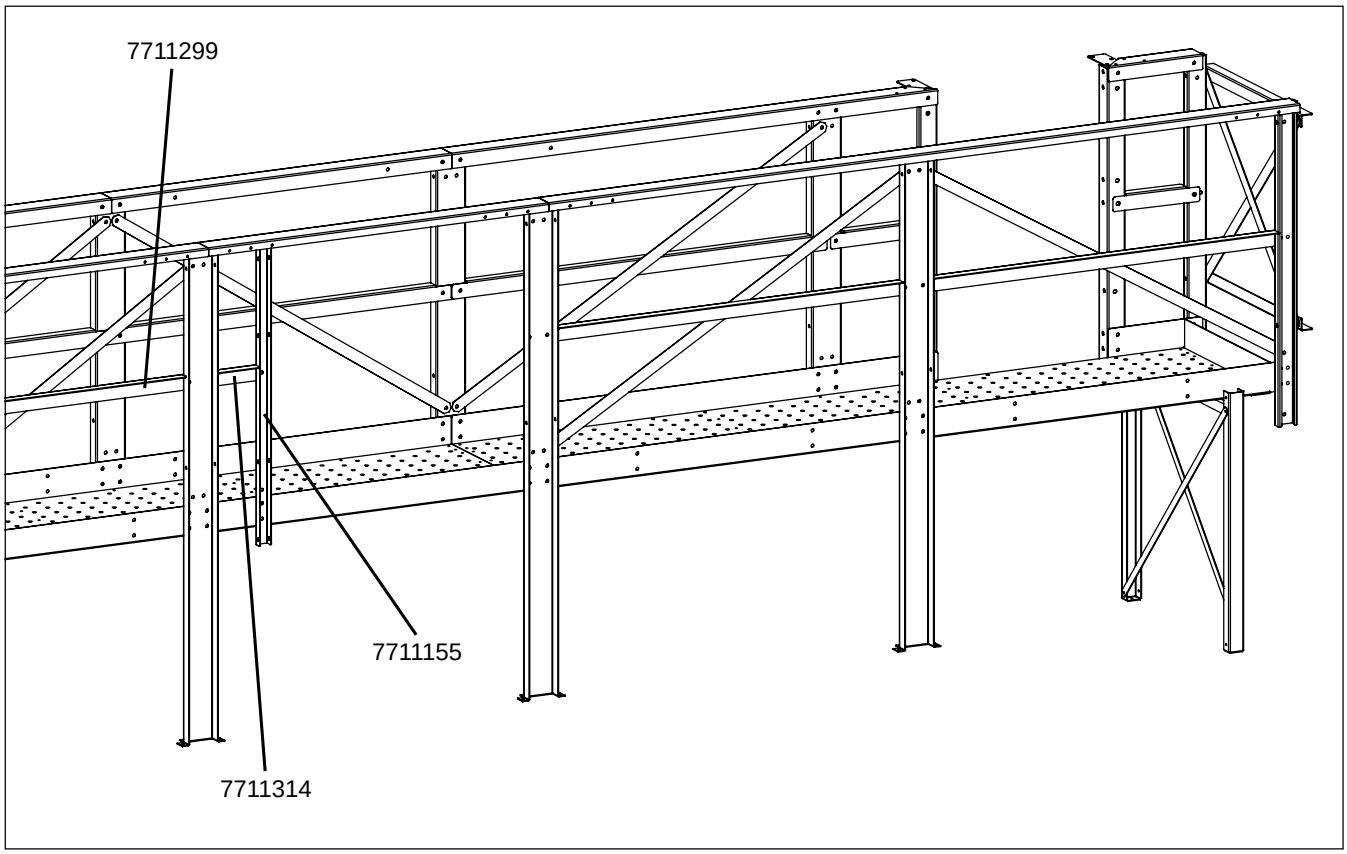


Part Number	Part Name	Quantity
7712576	Handrail Cross Brace	2
7712583	End Diagonal Brace	2

Install the remaining mid upright (7711155) and 7-3/4” lower handrail (7711314).

- Use 3/8” bolts, washers, and flange nuts.

Figure 114. Install the Remaining Mid Upright and 7-3/4” Middle Lower Handrail

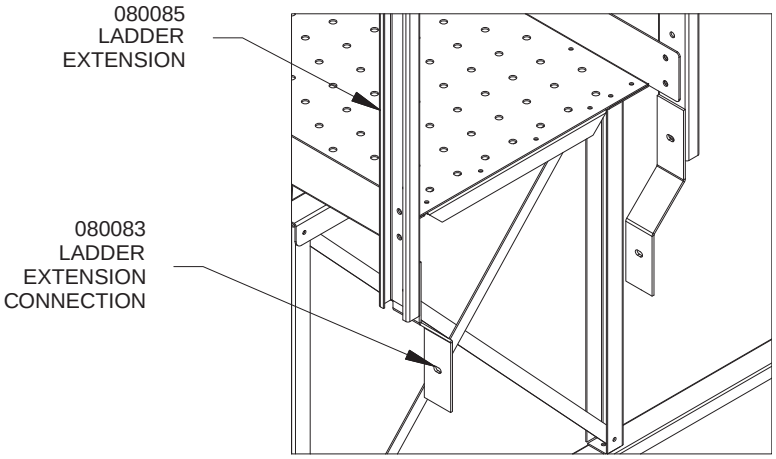


Part Number	Part Name	Quantity
7711155	Mid Upright	1
7711299	45-1/2” Middle Lower Handrail	1
7711314	7-3/4” Lower Handrail	1

4.8. Installing the Ladder and Cage at the Catwalk Entry

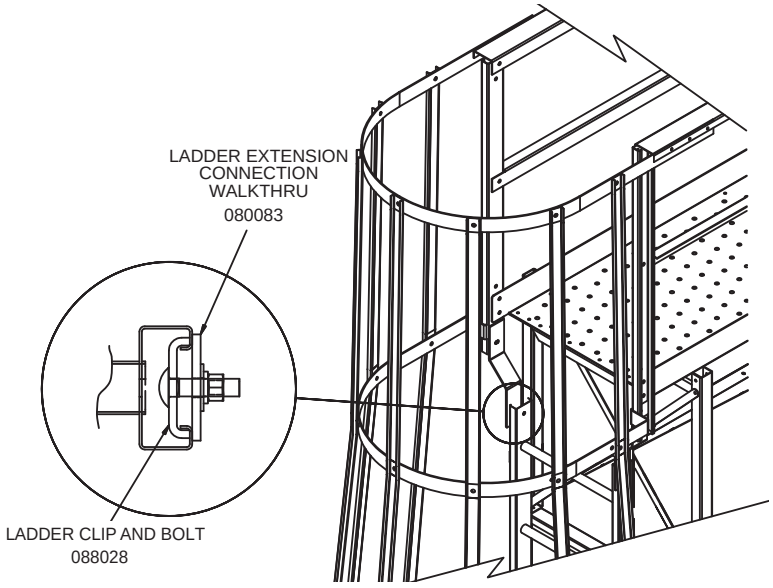
1. Using 3/8" hardware, bolt the ladder extensions (080085) to the bottom of the ladder connection plates (080083). For extended catwalks, repeat at the opposite end if a second ladder is to be installed on the dryer, opposite the standard ladder.
2. These connection plates will attach to the top of the ladder system which is installed using ladder clip and bolt assemblies (088028) with 3/8" hardware after the topside is installed.

Figure 115. Install Ladder Extension Connection Plates



3. Once the catwalk is complete, install the upper ladder. Note that the vertical position may need to be adjusted somewhat when the roof assembly is stacked.
4. The top end of the ladder connects to the ladder connection plates (080083) at the end of the catwalk. Note that the ladder connection plates mount outside the ladder rails.

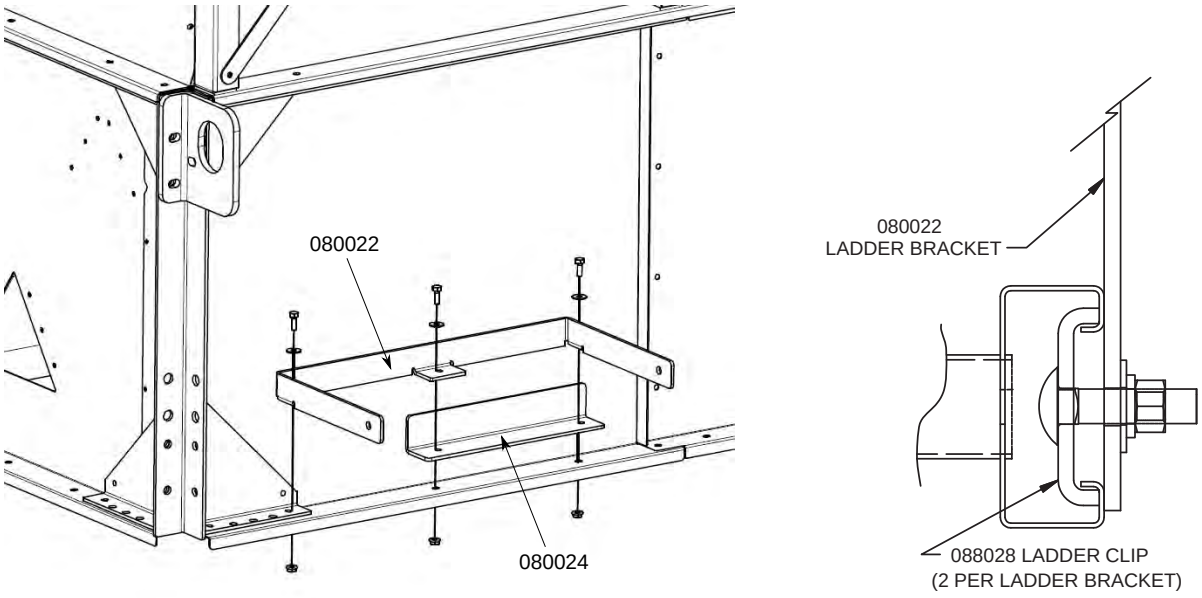
Figure 116. Complete the Connection to the Ladder



5. Secure the ladder to the tiers of the roof section using one (4' ladders) or two (6' and 8' ladders) ladder brackets (080022). When a ladder bracket is installed at the bottom of the roof assembly, a spacer (080024) must be used under the bracket (080022). This spacer is not needed when installing the brackets in other

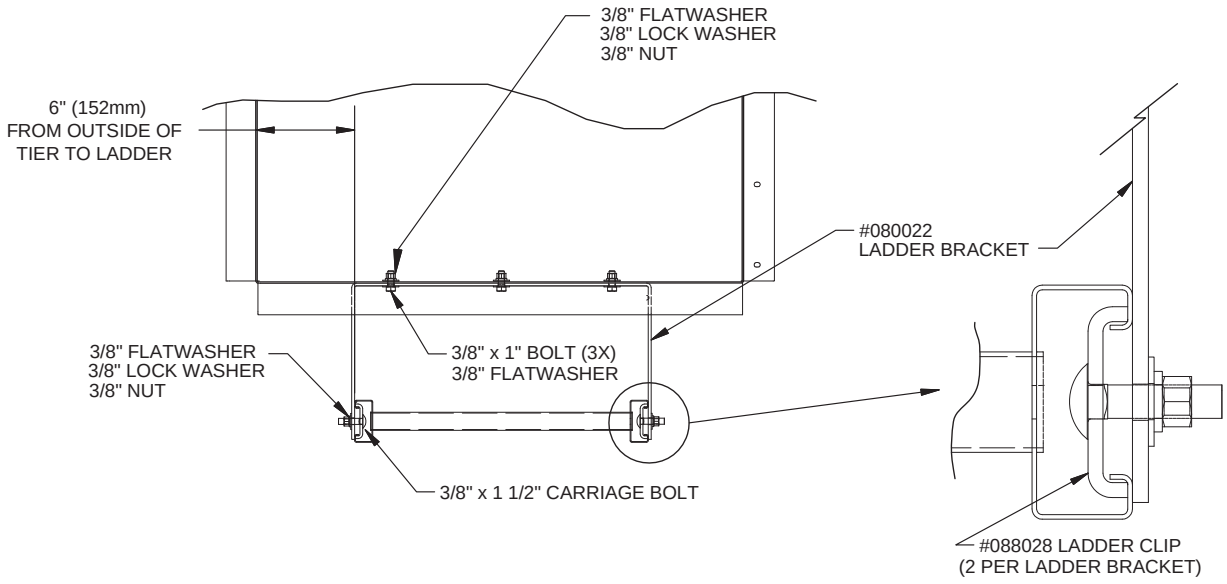
locations. Once all required brackets are in place, secure the ladder to the brackets with the ladder clip and bolt assemblies (088028).

Figure 117. Install the Ladder Bracket



6. Fasten the ladder sections to each ladder bracket using two ladder clip and bolt assemblies (088028) per bracket.

Figure 118. Install the Ladder

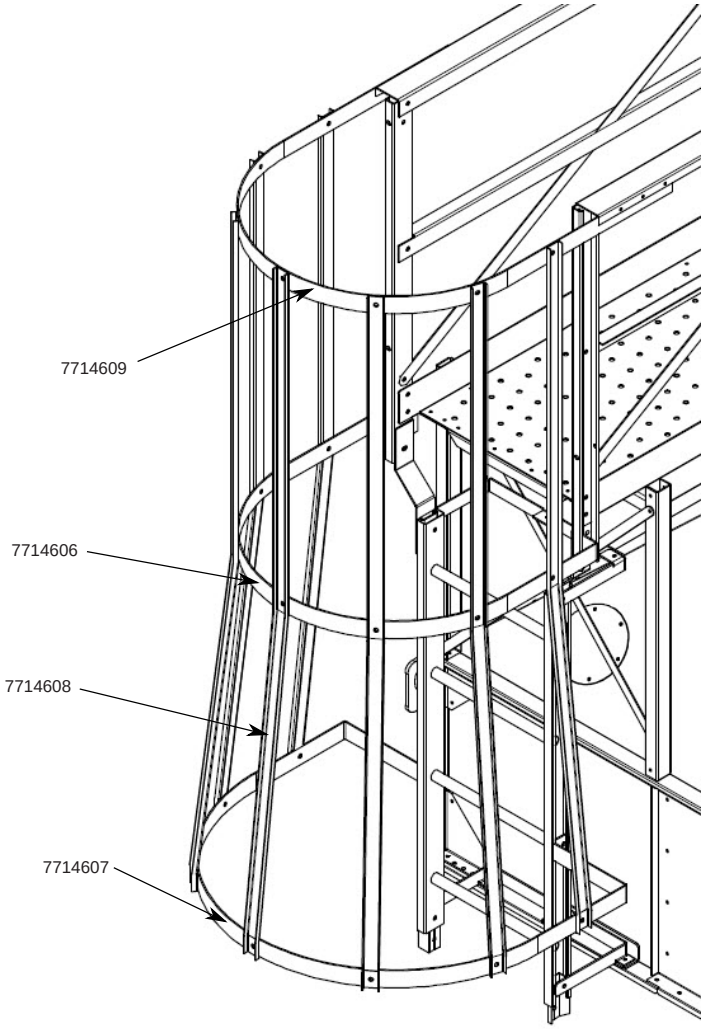


7. Except for the upper-most ladder section that reaches to the catwalk, ladders are pre-installed on the dryer sections. As sections are stacked, adjacent ladders are connected to each other with ladder splices (088029) as shown. Ladders may need to be adjusted up or down during this process for proper alignment.

   Dryers with Roofs and Catwalk System

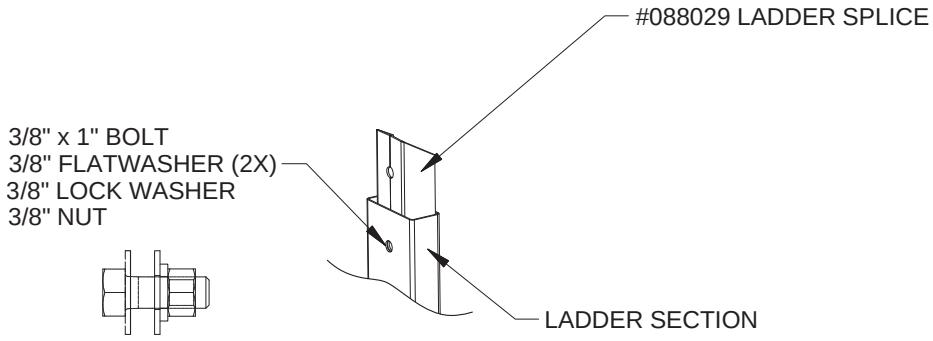
   Assemble safety cage as shown in Figure 119. Use hardware in the safety cage hardware box (7714611).

Figure 119. 7714610 Cage Assembly at Catwalk Entry



8. Between ladder sections, place a ladder splice (088029) into each ladder leg as shown so that both sections are aligned and securely bolted together.

Figure 120. Bolt Ladder Sections Together with Ladder Splices

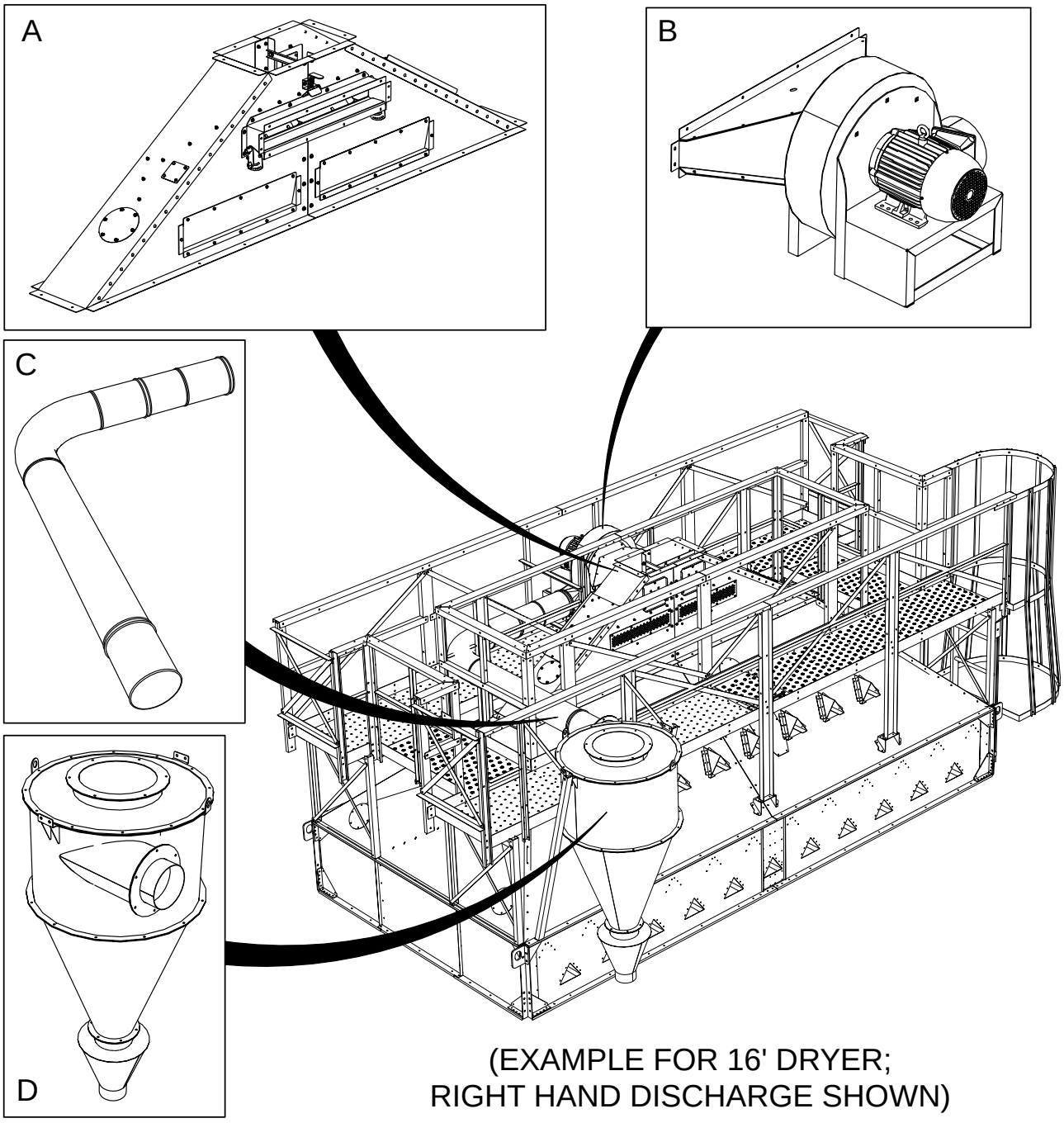


4.9. Installing Dryer Inlet Pre-Cleaner

4.9.1 Required Tools

1. Impact Driver with 3/8", 7/16" and 9/16" sockets
2. 13mm socket
3. Wrench, 13mm, 7/16", 1/2", 9/16"
4. Drill with 1/4" drill bit

4.9.2 Pre-Cleaner Feature

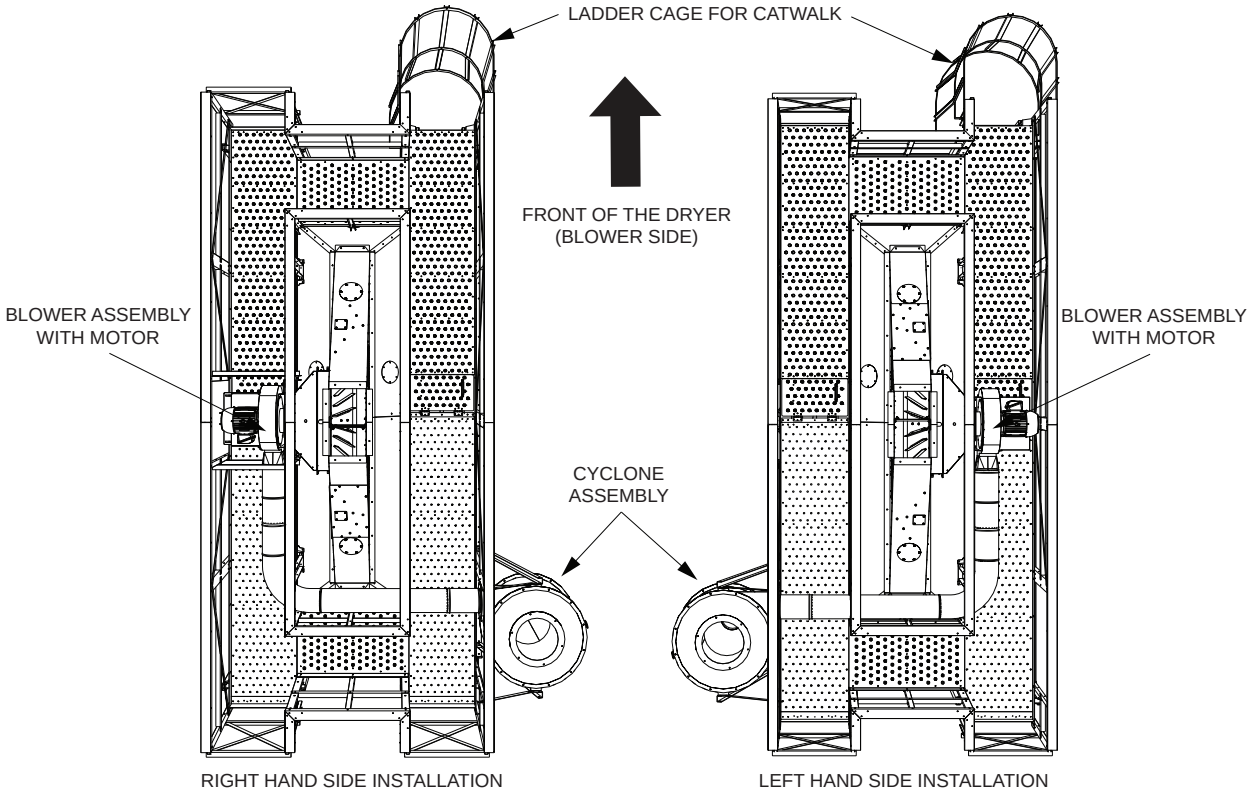


Item	Description
A	Pre-Cleaner Gravity Fill
B	Blower Assembly (Pre-Assembled with Motor and Motor Mount)
C	Rooftop Blower Pipes
D	Cyclone Assembly

4.9.3 Preferred Installation Method

The pre-cleaner assembly can be installed in either side of the dryer (see Figure 121). Choose the preferred side of your dryer and check Table 10 on page 121 for installation sequence:

Figure 121. Example of Installed Pre-Cleaner on a 16' dryer



NOTE: FOR SINGLE BURNER DRYERS, THE LADDER CAGE IS MOUNTED IN THE BACKSIDE OF THE DRYER

Table 10. Pre-Cleaner Installation Sequence

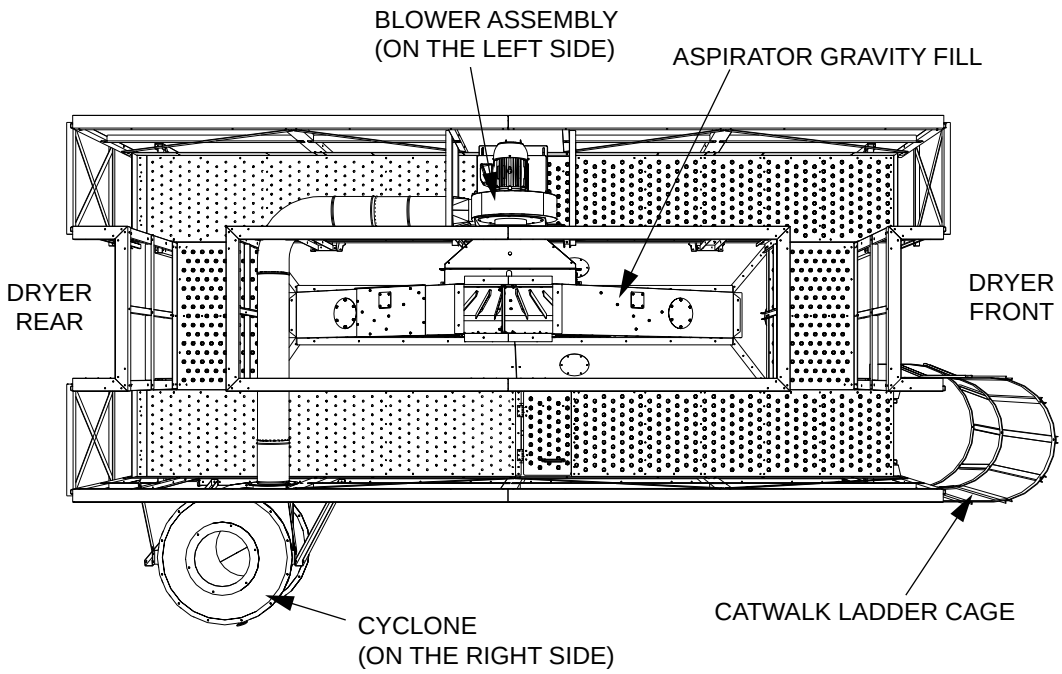
Steps	Before attaching the roof sections to the dryer
1	See Section 4.9.5 – Installing Pre-Cleaner Gravity Fill on page 124
2	See Section 4.9.6 – Installing Blower Assembly on page 125
3	See Section 4.9.7 – Installing Cyclone on page 126
4	See Section 4.9.8 – Installing Rooftop Blower Pipes on page 130
	After attaching the roof sections to the dryer
5	See Section 4.11 – Installing 6" Discharge Pipe on page 162
6	See Section 4.12 – Route Motor Harness and Wire Into Panel on page 165
7	See Section 4.13 – Programming (M241 PLC) on page 165

Please note, the figures in the pre-cleaner installation instructions in this manual represents the right side installation. Check the layouts of the pre-cleaner for 16', 24' and 32' dryer for right side installation in Section 4.9.4 – Pre-Cleaner Layouts on Dryers on page 122.

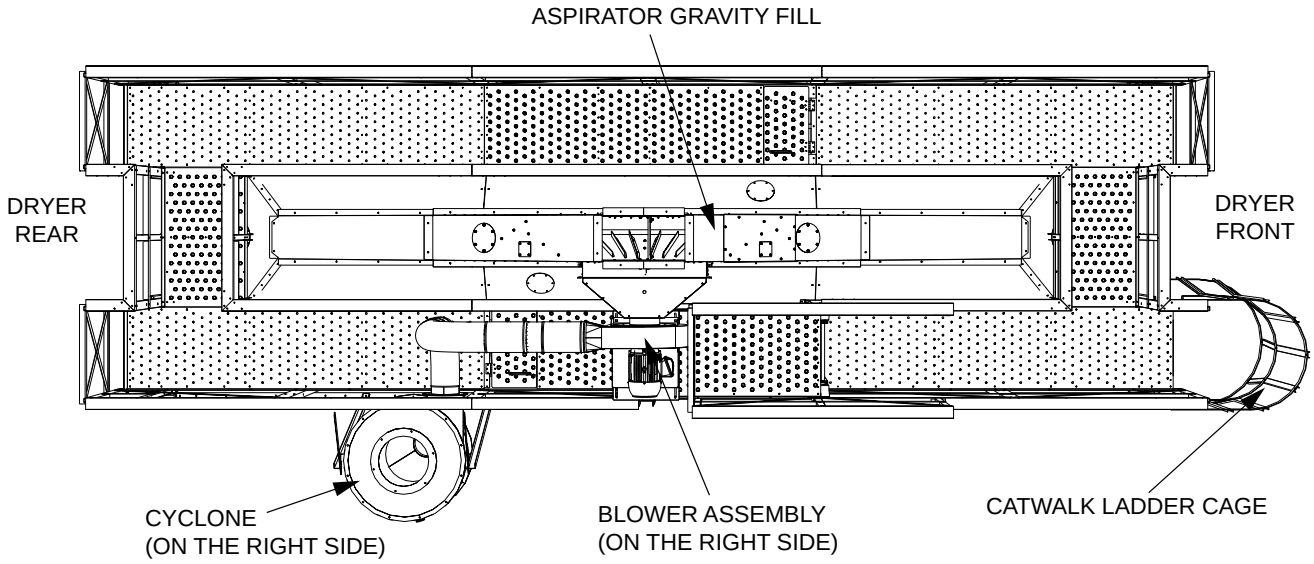
4.9.4 Pre-Cleaner Layouts on Dryers

The following layouts represent right side installation of the Pre-Cleaner.

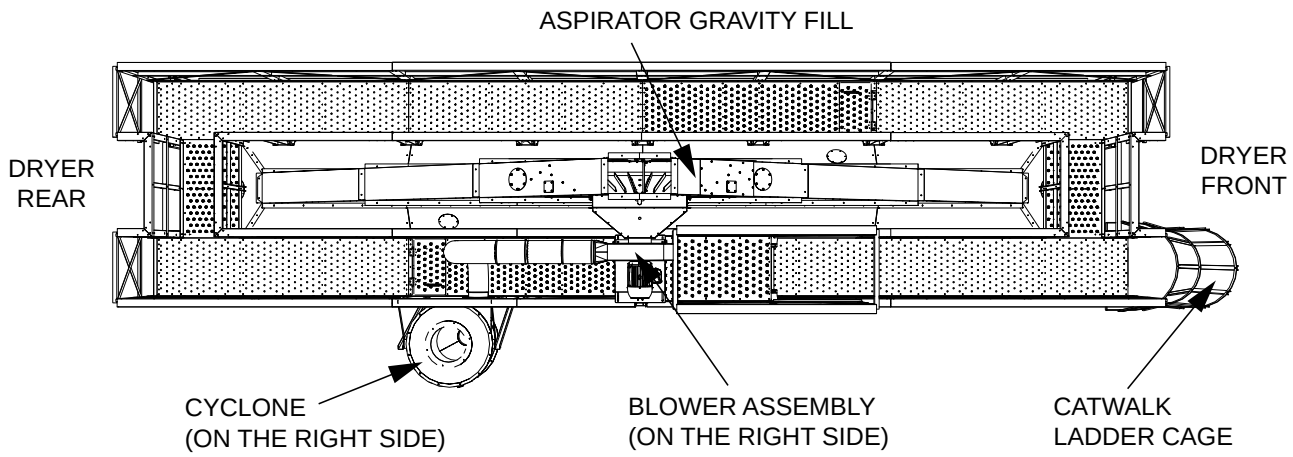
Pre-Cleaner on 16' Dryer



Pre-Cleaner on 24' Dryer



Pre-Cleaner on 32' Dryer

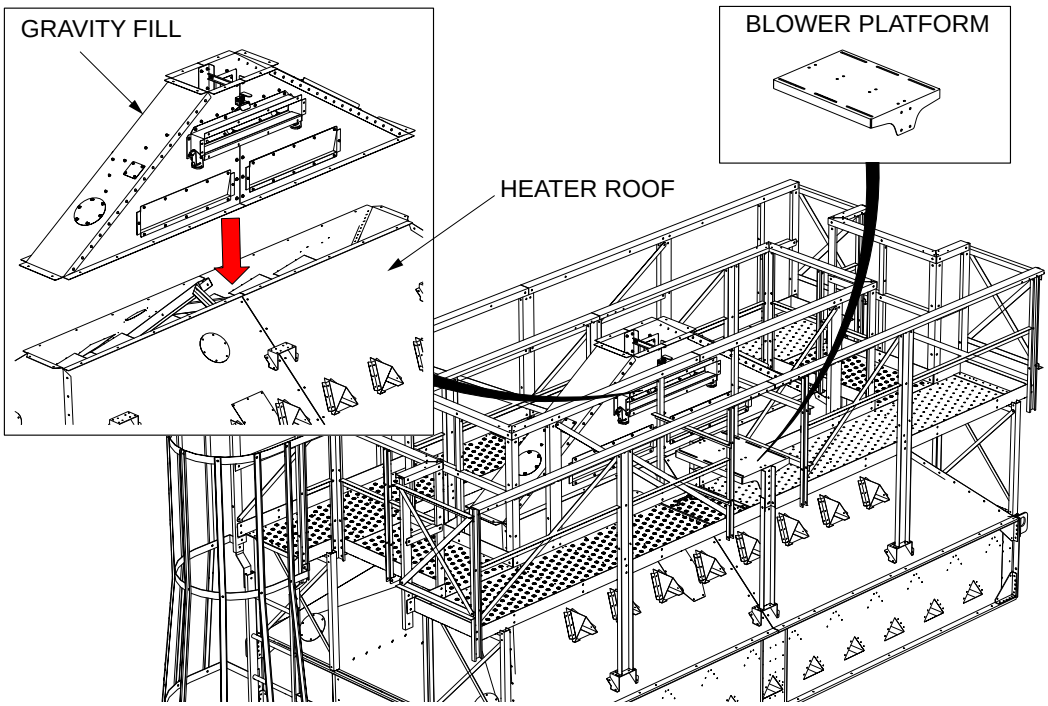


4.9.5 Installing Pre-Cleaner Gravity Fill

Table 11. Gravity Fill Part Numbers (Domestic)

Dryer Model Size	Part Number
16'	7711106
24'	7711304
32'	7711305

Figure 122. Pre-Cleaner Gravity Fill on the dryer Roof (Example of 16' Dryer)



1. Align the gravity fill on the dryer roof. Make sure the aspirator outlet is facing the blower platform.

   Note

   - The blower and motor assembly will always be mounted in the center of the catwalk on either side of the aspirator gravity fill.

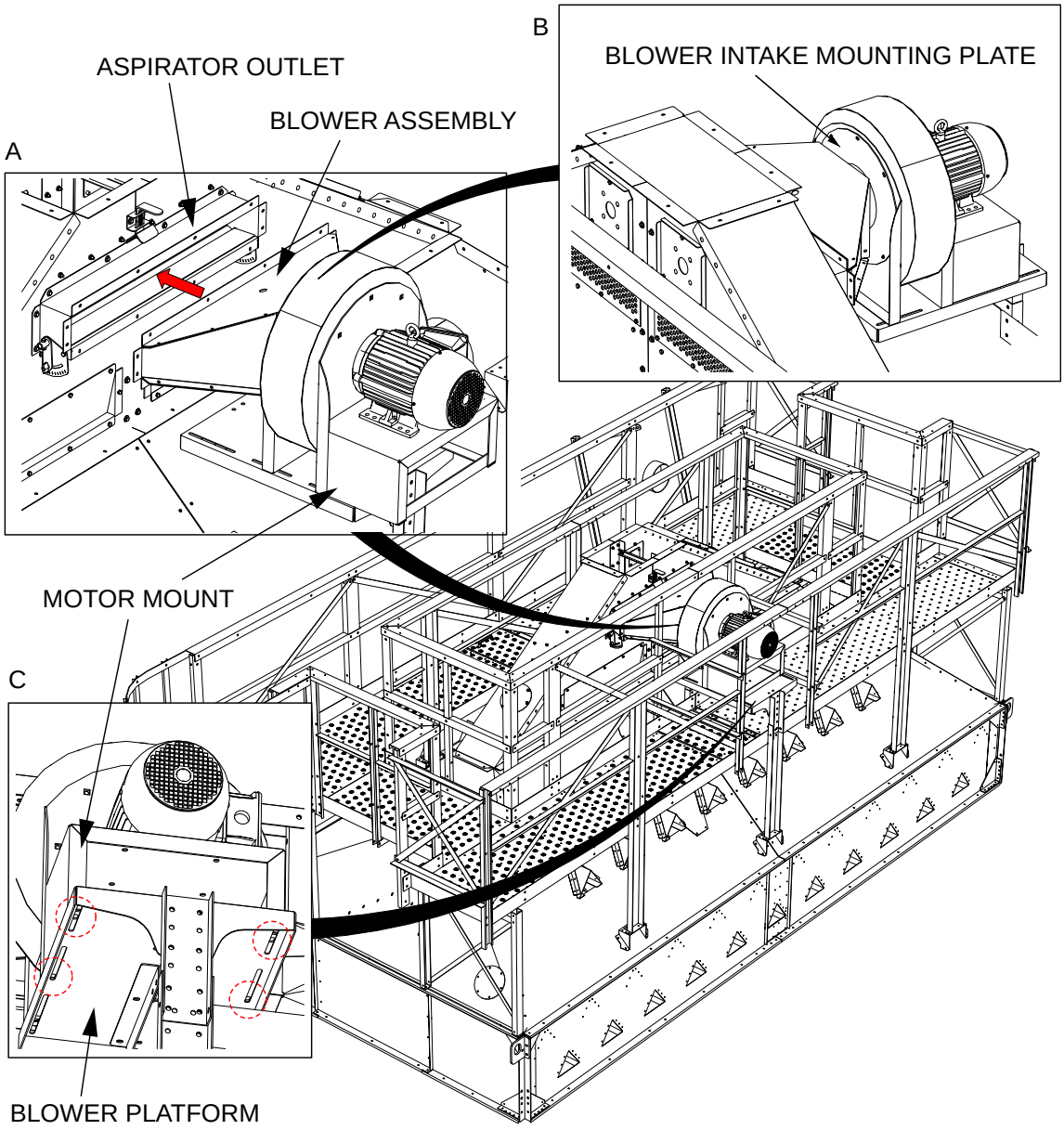
2. Secure the gravity fill with 1/4" flanged bolt and whiz nut.

4.9.6 Installing Blower Assembly

Note

- Use one 1/4" flanged bolt and whiz nut in 1/4" hardware location.
- Use one 3/8" bolt, washer, and whiz nut in 3/8" hardware location.

Figure 123. Blower Assembly Installation



1. Hoist the blower assembly onto the Blower Platform.
2. Loosen the bolts of the Blower Intake Mounting Plate using 13mm socket (see detail B in Figure 123) and align the bolt slots of Blower Intake with the Aspirator Outlet (see detail A in Figure 123) and Motor Mount with the Blower Platform.
3. After adjusting the bolt slots, attach the Blower Intake to the Pre-Cleaner Aspirator Outlet using 1/4" hardware (see detail A in Figure 123) and
4. Attach the Motor Mount to the Blower Platform using four 3/8" hardware (see detail C in Figure 123. 3/8" hardware location are shown in red circles)
5. Tighten the bolts on the Blower Intake Mounting Plate

   Important

   Do not over-tighten these bolts as they are threaded directly into the blower housing without any nut. Over tightening can permanently damage the bolt hole threads.

4.9.7 Installing Cyclone

Note

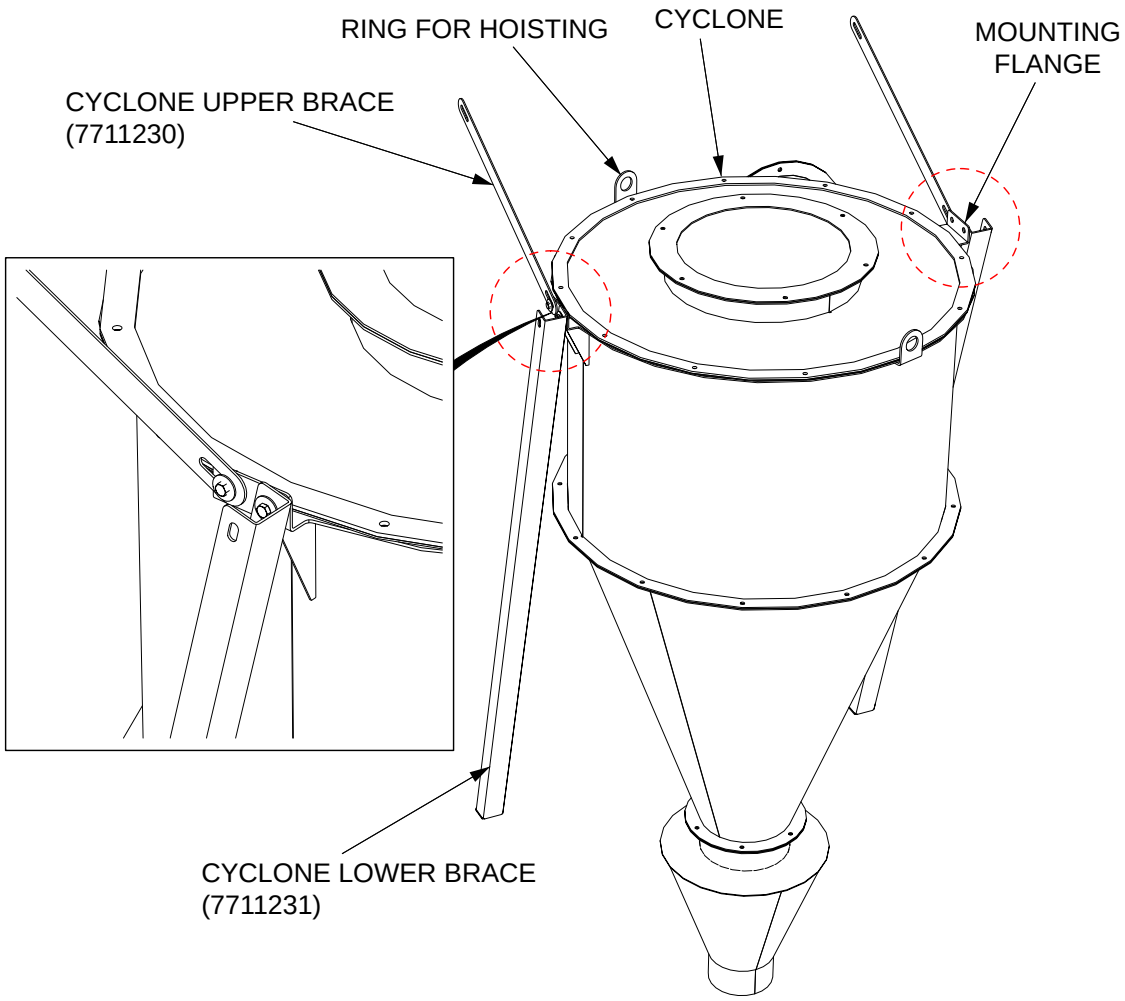
Cyclone's correct location varies depending on the discharge direction

Note

- Use one 1/4" flanged bolt and whiz nut in 1/4" hardware location.
- Use one 3/8" bolt, washer, and whiz nut in 3/8" hardware location.

1. Install Cyclone upper braces (7711230) and lower braces (7711231) on the mounting flanges on the top of the Cyclone. Use 3/8" hardware. Hand tight the bolts. See Figure 124.
   a. Each mounting flange has two holes. The front hole is the one closer to the cyclone inlet tube. Install the upper braces (7711230) in the front holes, and the lower braces (7711321) in the rear holes.

Figure 124. Installing the Cyclone Braces



2. Prepare the Cyclone for hoisting.

Important

Do not use the mounting flanges to hoist the Cyclone.

Note

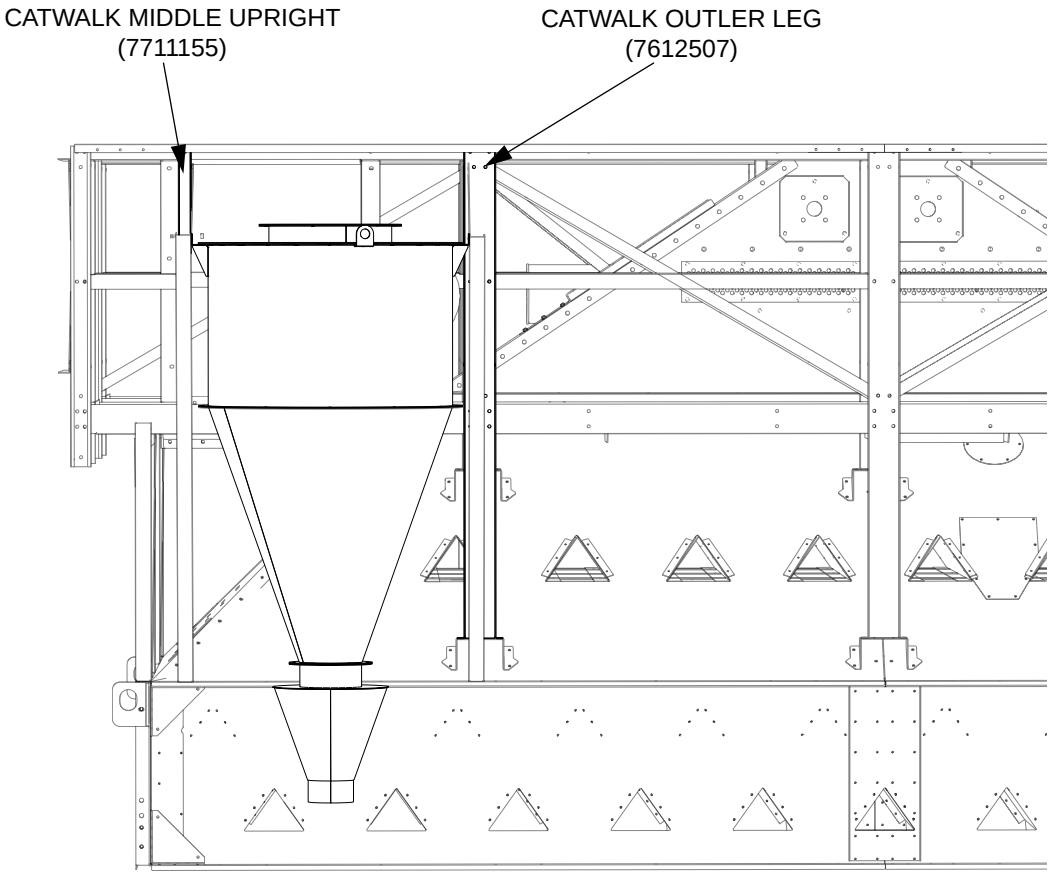
- The rings on top of the Cyclone can be used as lifting lugs.
- Alternatively, a lifting strap can be fed through the Cyclone and stabilized with a cross bar underneath.

3. Hoist the Cyclone into position. See Figure 125.

Note

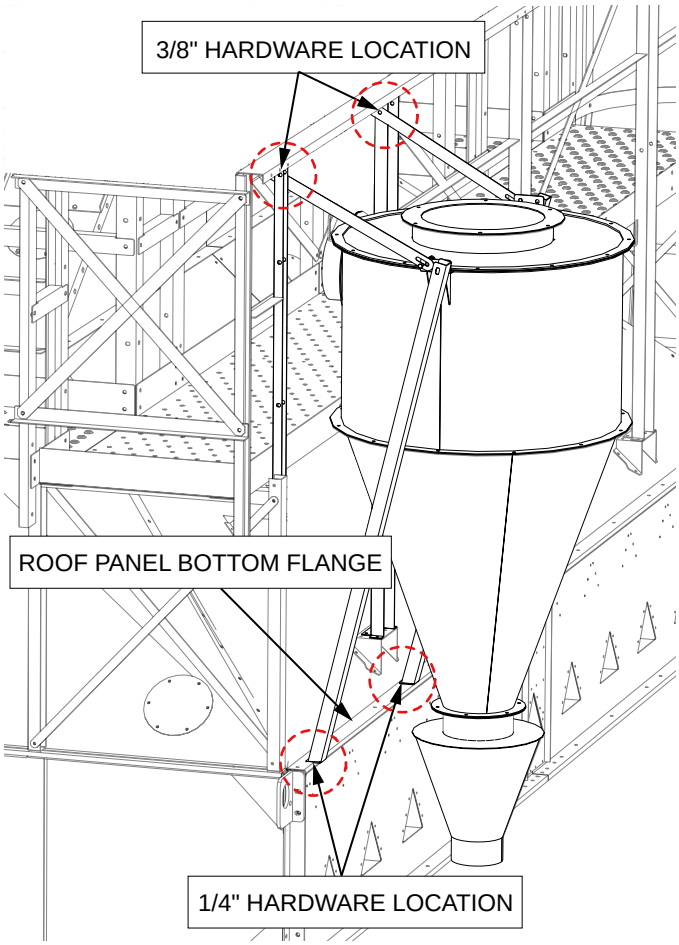
- Make sure the Cyclone is in the rail gap between a Catwalk outer leg (7612507) and Catwalk middle upright (7711155).
- The lower braces (7711231) should rest on the roof panel's bottom flange.

Figure 125. Hoisting the Cyclone into Position



4. Attach the upper braces (7711230) to the outside of the Catwalk upright legs using 3/8" hardware. Attach the lower braces (7711231) to the dryer side using 1/4" hardware. Figure 126.

Figure 126. Attaching Upper Braces to Catwalk



Note

- Make sure the Cyclone is centered between the Catwalk upright supports
- Make sure the Cyclone lower braces (7711231) are square against the dryer.
- Use an existing 1/4" bolt hole if possible. If this cannot be done while keeping the Cyclone squarely mounted, drill new 1/4" holes.

4.9.8 Installing Rooftop Blower Pipes

1. Cut the 8"x 5' pipe (7711251) to the sizes specified below.

Duct Kit	# Ducts Provided (7711251)	Duct Lengths Required
16ft	1	RH & LH: 13" & 47"
24ft	1	RH: 13" & 13" LH: 13" & 30"
32ft	2	RH: 17" & 43" LH: 38" & 43"

2. Assemble the duct work as shown in Figure 127, Figure 128 and Figure 129 below.
   a. All assembly diagrams depict right-hand discharge configurations.
   b. Right-handed parts are designated with “RH” in the part label. Left-handed parts are designated with parentheses and an “LH” designation.
   c. Secure all ducts with 8" pipe clamps (7711258).

Figure 127. Pipe Installation for 16' Dryer

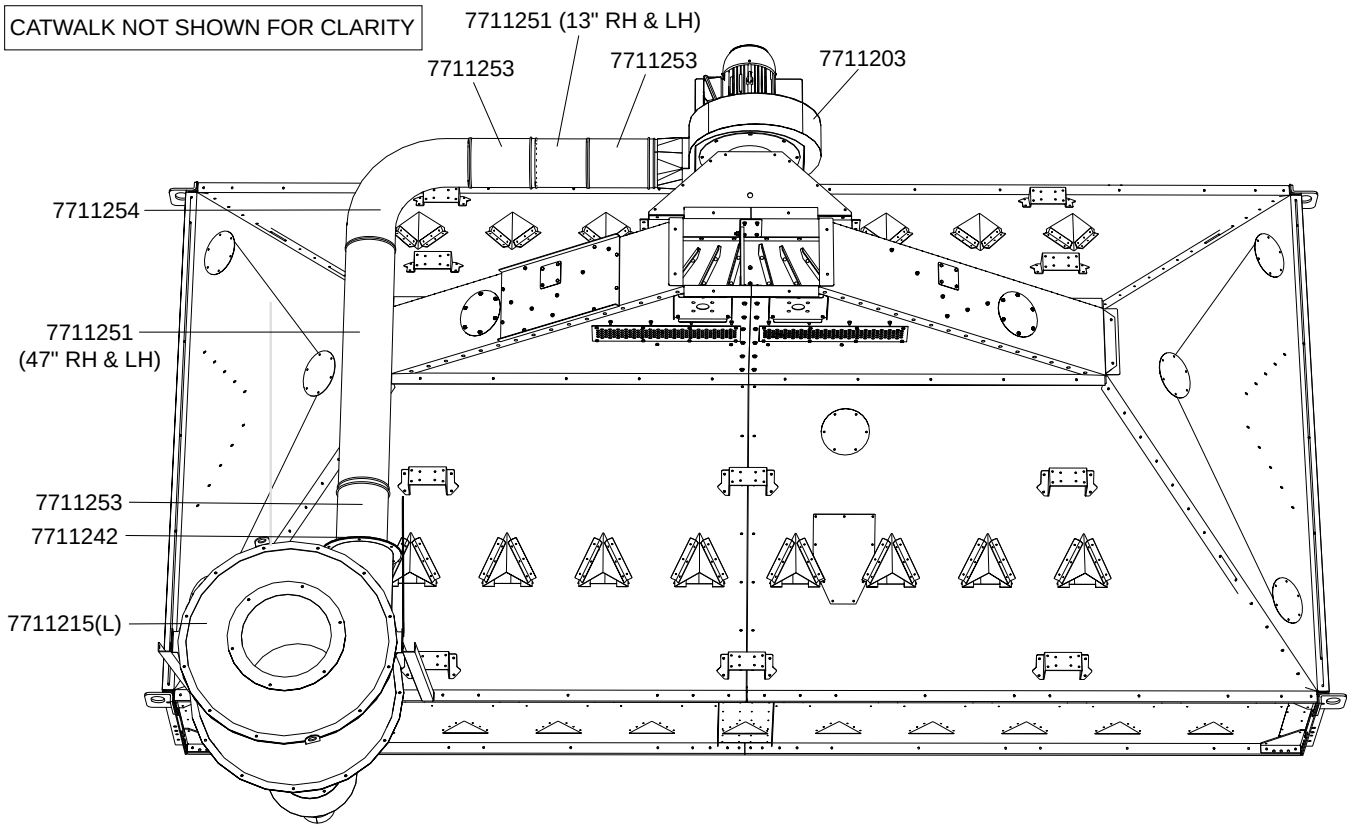


Figure 128. Pipe Installation for 24' Dryer

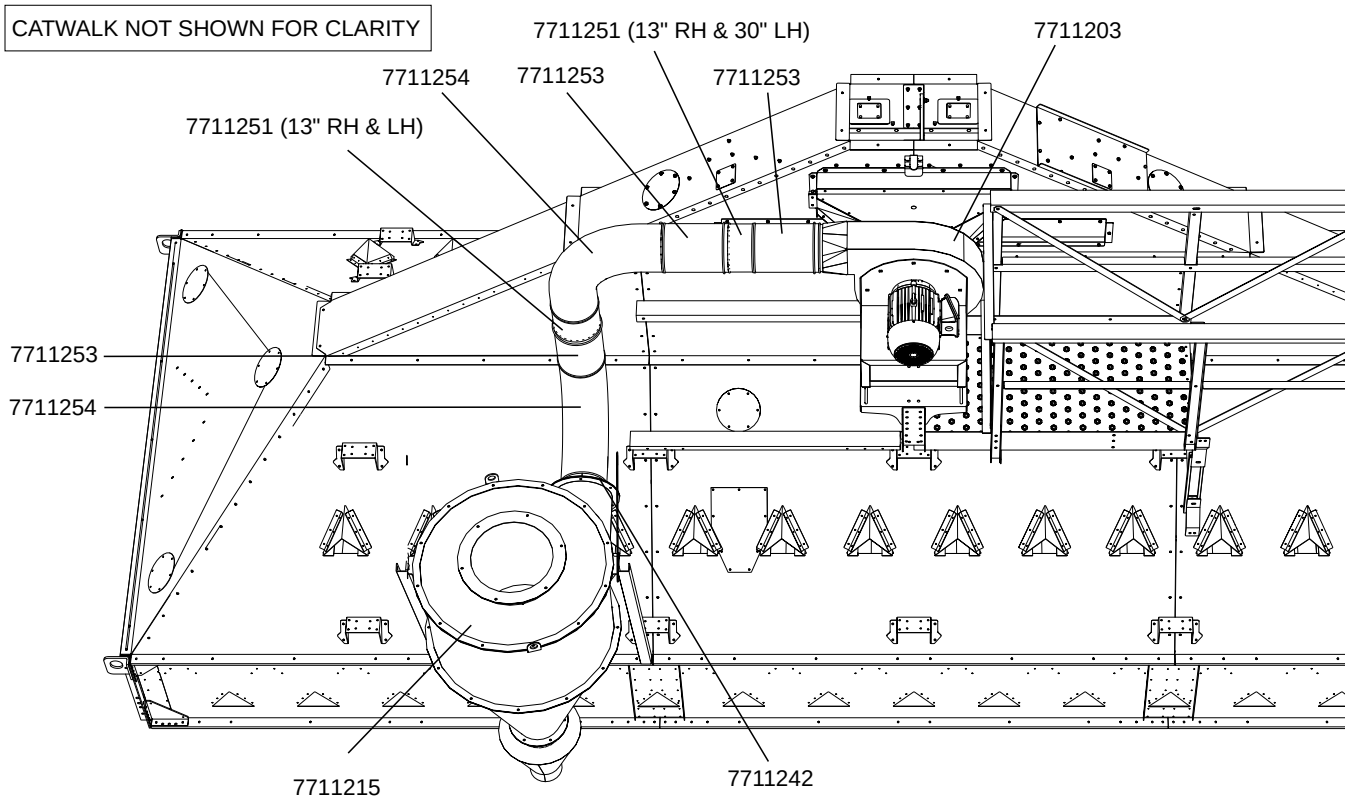
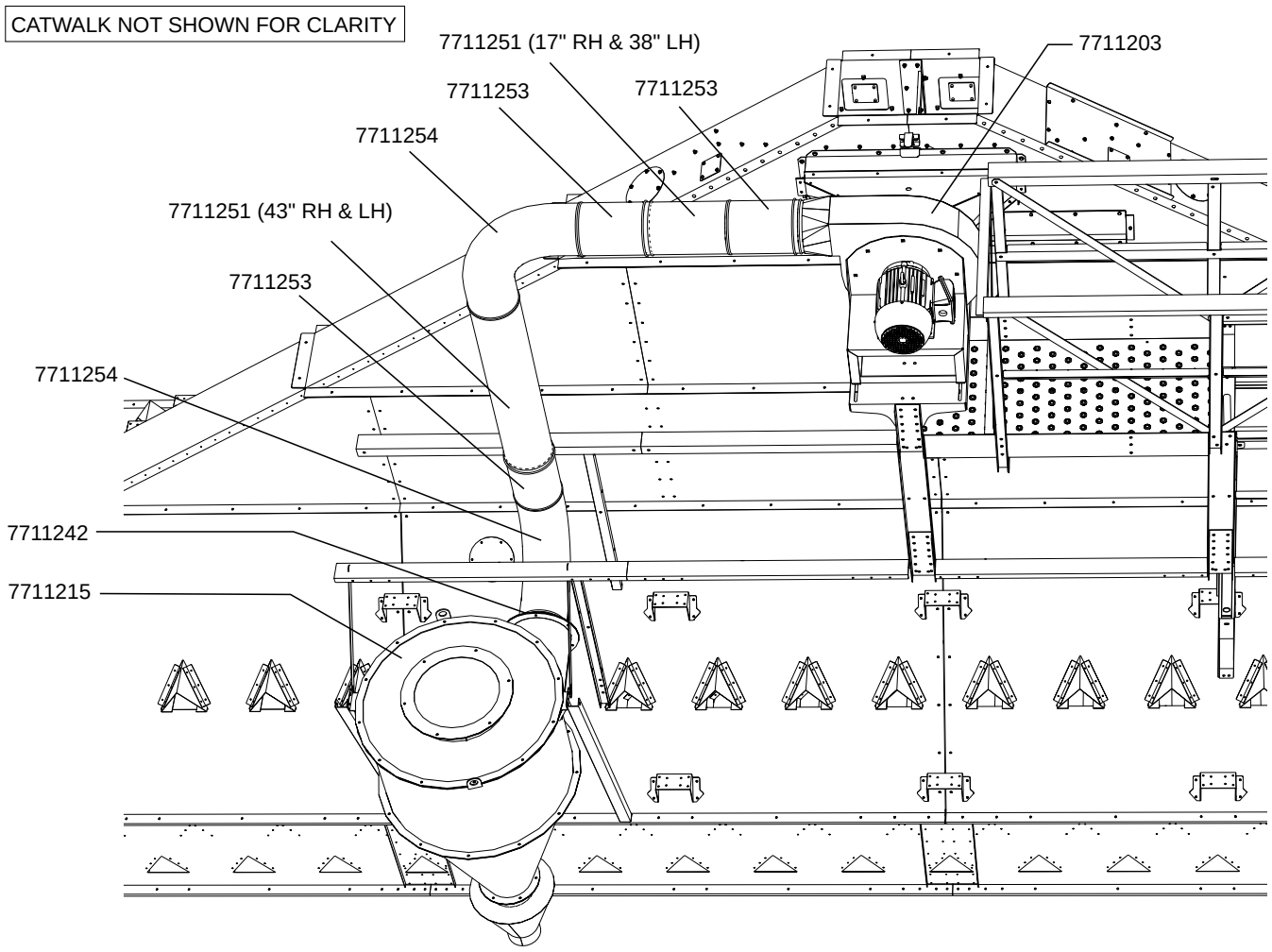
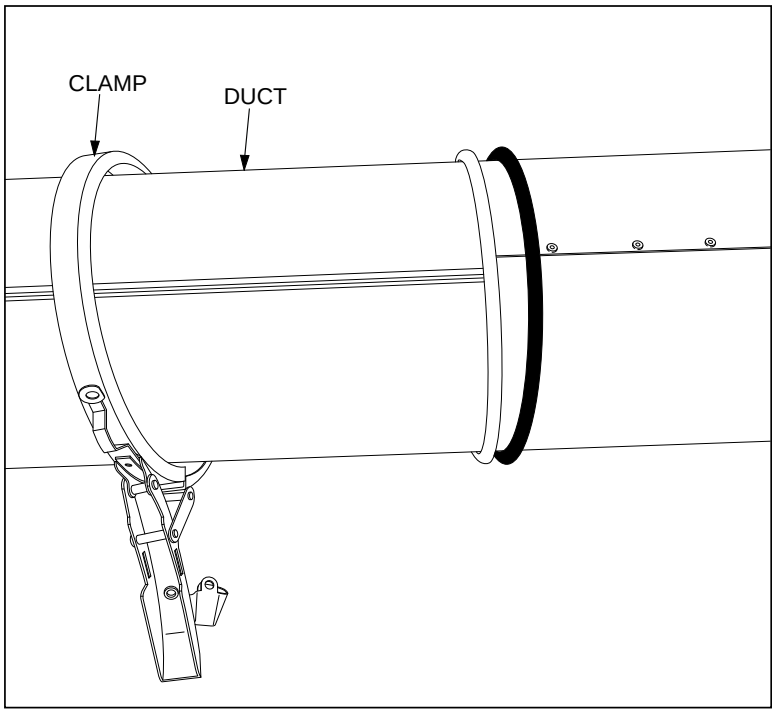


Figure 129. Pipe Installation for 32' Dryer



3. Insert the cut end of the 8" ducts into the next pipe. Leave the pipe clamp loose around the duct until proper alignment with the next is achieved. See Figure 130 on page 133.

Figure 130. Duct Assembling



4. Place an O-ring on either the 8" duct section or the duct it attached to. See Figure 131 on page 134 to Figure 133 on page 135 for O-ring placement diagrams.

Note

O-rings labelled “SLEEVE” are pre-placed on the pipe sleeve 7711253. O-rings labeled “HARDWARE KIT” must be retrieved from the provided hardware kit. Each roof duct kit will use four O-rings.

Figure 131. O-Ring Placement for 16' Dryer

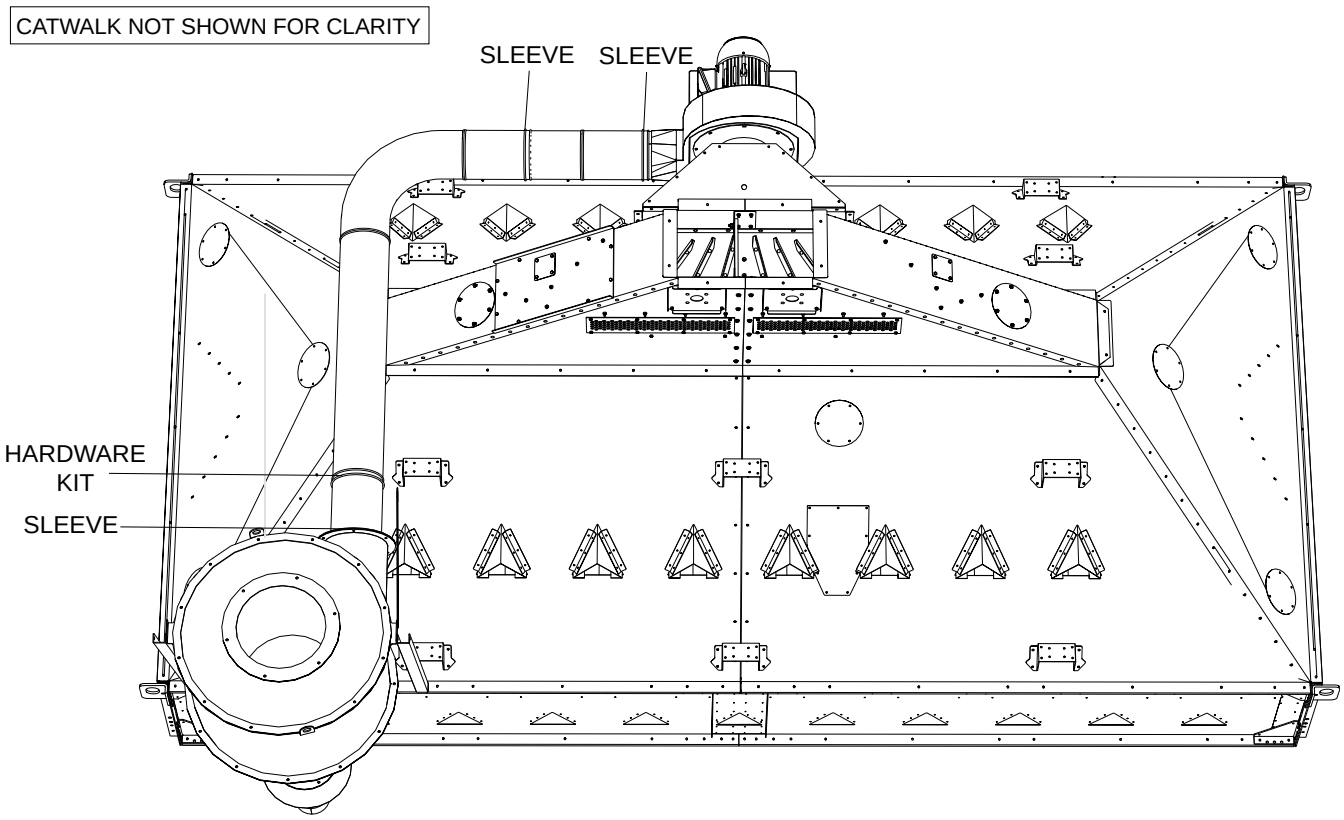


Figure 132. O-Ring Placement for 24' Dryer

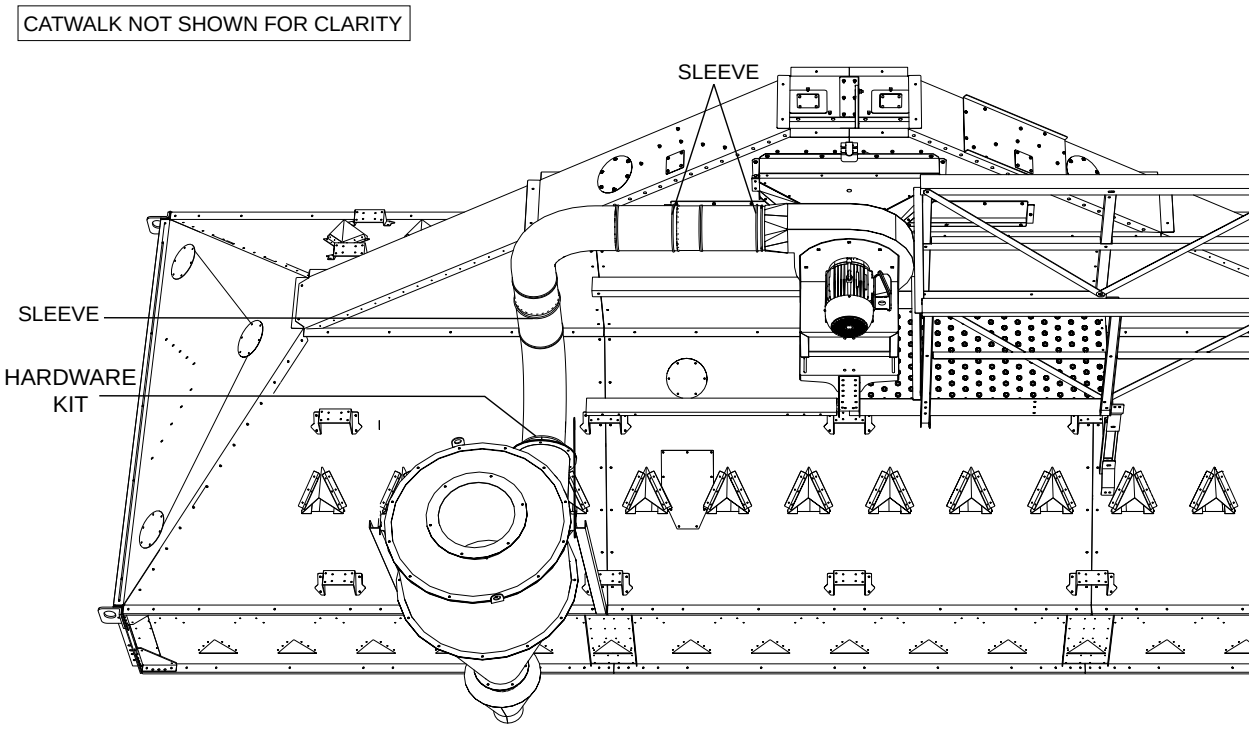
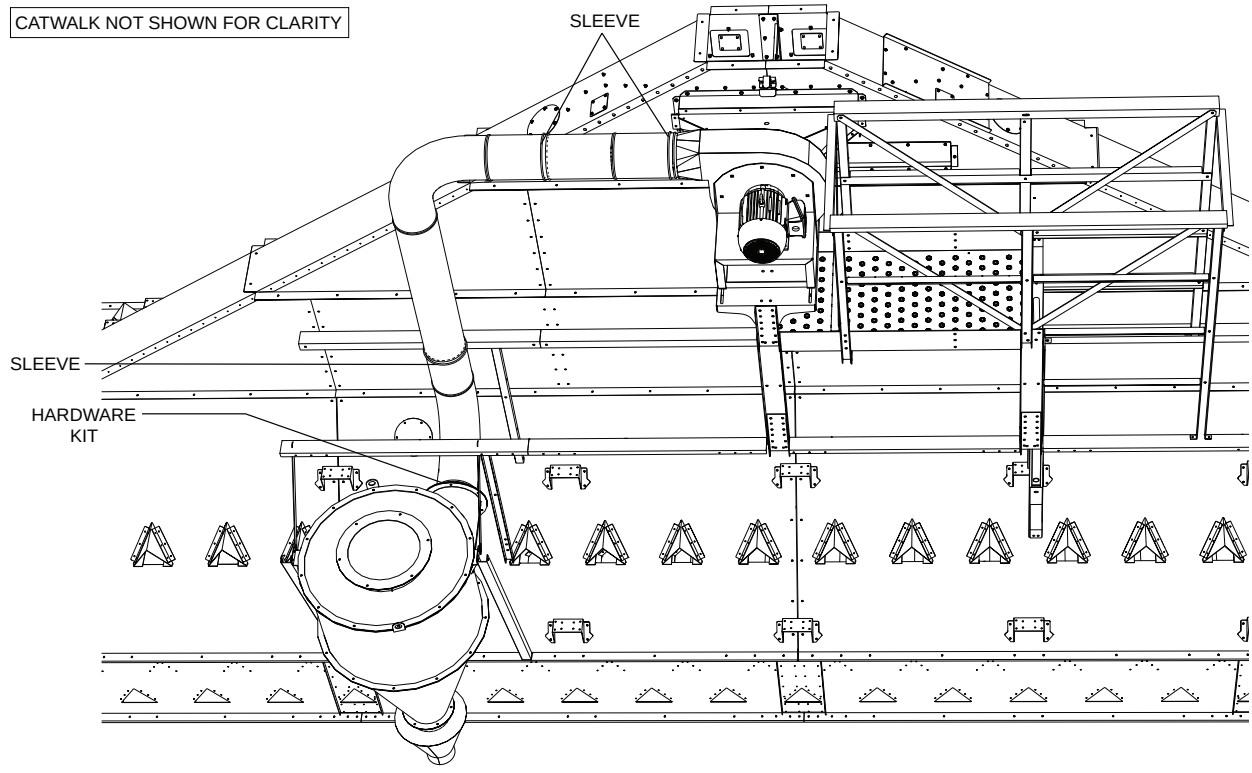
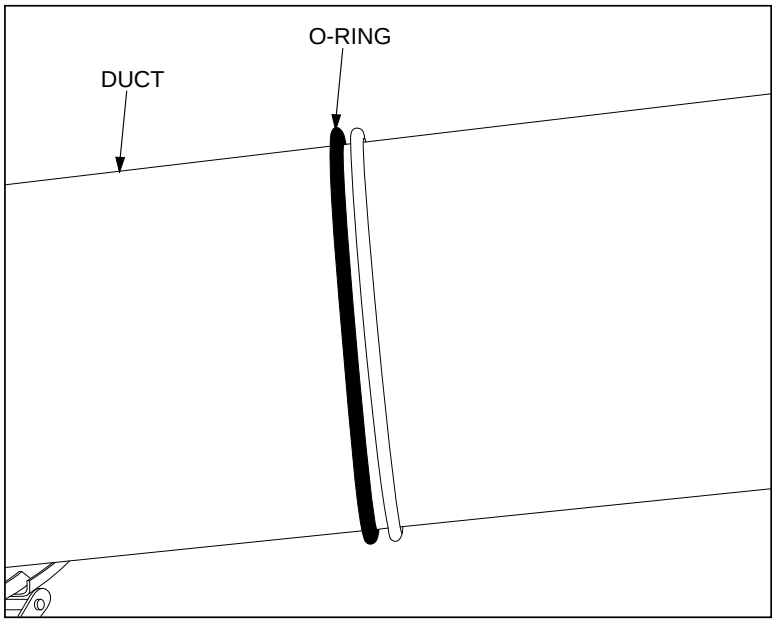


Figure 133. O-Ring Placement for 32' Dryer



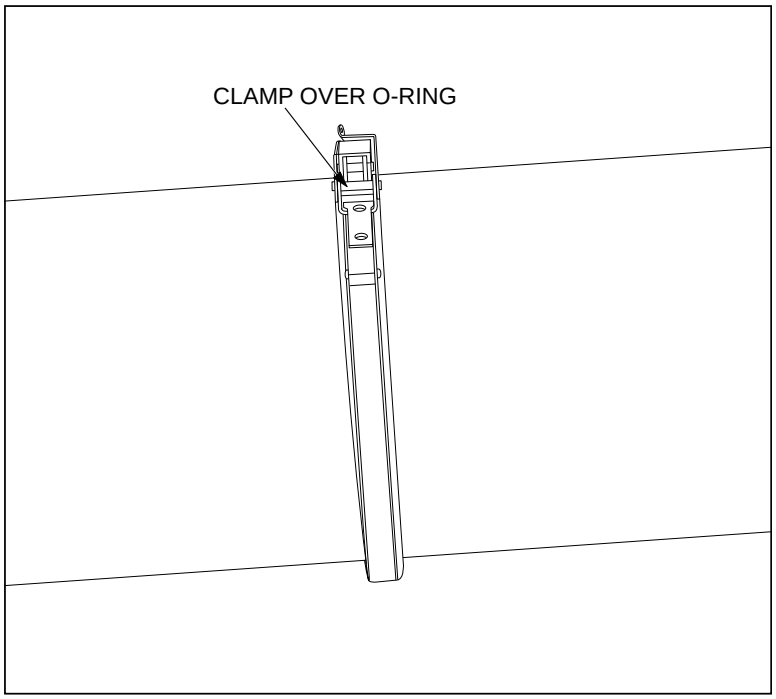
5. Position the O-ring against the duct's rolled lip. See 134 Positioning O-ring on page 136.

Figure 134. Positioning O-ring



6. Place the pipe clamp over the duct lip and O-ring. Secure it to lock the duct section in place. See 135 Installing Clamp over O-ring on page 136.

Figure 135. Installing Clamp over O-ring



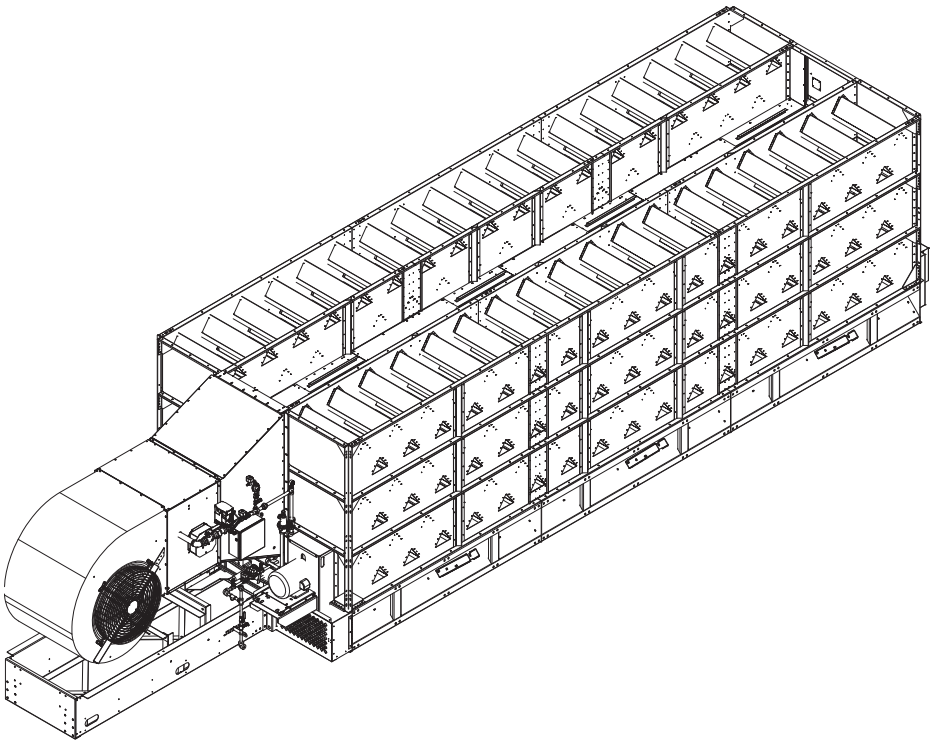
4.10. Install Dryer

⚠ WARNING Check and verify all anchor attachment systems are tight and correctly installed according to the anchor manufacturer's specifications before adding any upper dryer sections or installing leg kit (when supplied).

4.10.1 Position Lower Dryer Section at Location

1. Position the lower dryer section at the final location.
2. Be sure to support the lower section using a crane or setting it on temporary blocks, etc.

Figure 136. Positioning the Lower Dryer Section



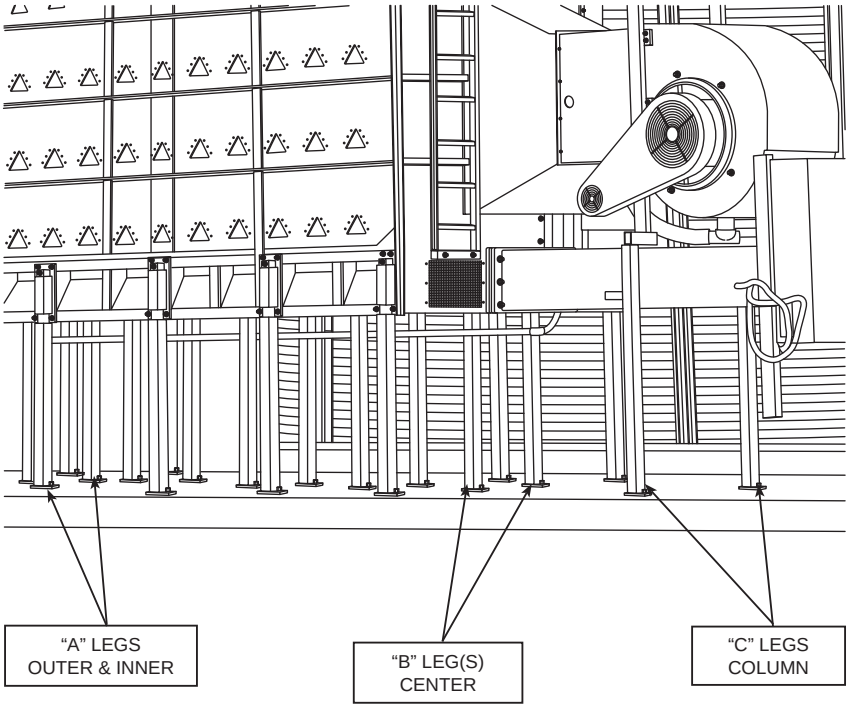
4.10.2 Install NECO Leg Kit

⚠ WARNING Be sure to support the dryer’s lower section assembly by hanging from a crane or sitting on blocks prior to installing ANY support legs.

Leg Styles and Location

- “A” Side legs are located around the outside & inside perimeter of the dryer.
- “B” Center leg is located under the dryer at the front (blower) end.
- “C” Column legs (if needed) are located to provide column support for the platforms.

Figure 137. Support Legs



Important

Be sure to torque all legs properly as they are being installed. Then, double-check torque values upon completion.

Figure 138. Using Shims

Outer Legs and Inner Legs

1. Use 5/8" x 1-½" hardware.
2. While the dryer lower section is hanging from a crane or setting on blocks, bolt the "A" outer side legs only around the outside perimeter of the dryer frame.
3. Once the "A" side legs are mounted around the outside, mount the inner "A" side legs to the inside frame positions.

Figure 139. Frame to Side Leg Hardware Arrangement

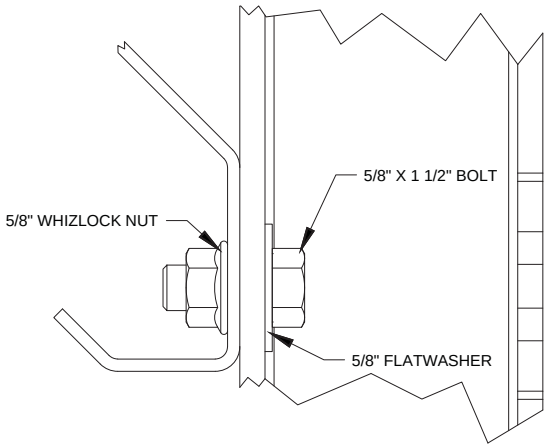


Figure 140. Side Leg Attachment

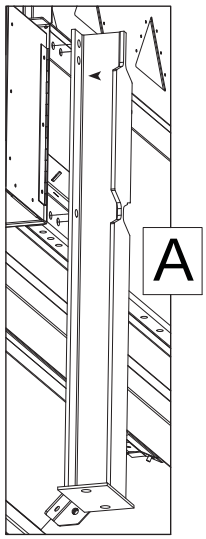


Table 12. Side Legs (outer and inner)

Part Number	Elevation		Length	
	inches	mm	inches	mm
045354	48	1220	65-3/8	1661
7714575	60	1524	77-3/8	1965

Note

Use 5/8" x 1-1/2" bolts, flat washer and flange nut.

Center Leg(s)

Note

Use 1/2" x 1-1/2" bolts, flat and lock washers and flange nut.

Dryers use the “B” double leg style for the front inner legs and the “A” style legs for the remainder of the inner legs. Use ½" x 1-1/2" hardware.

Figure 141. Center Support — Double

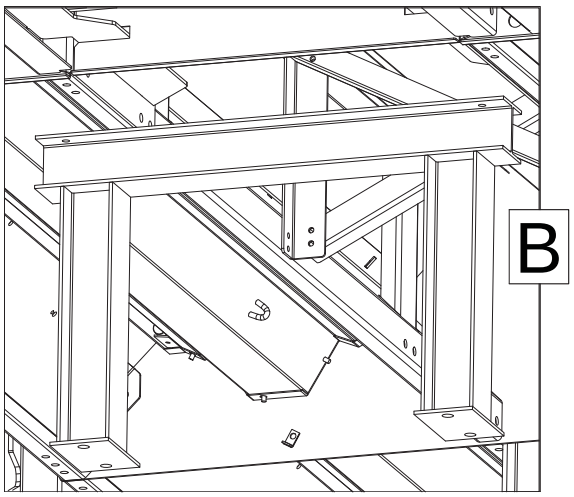


Table 13. Center Support — Double Leg

Part Number	Elevation		Length	
	inches	mm	inches	mm
045555	48	1220	65–3/8	1661
7714576	60	1524	77–3/8	1965

Column (Platform) Support Legs

Note

Dryers with only one section (one blower) do not use column support legs.

Dryers with more than one sections use “C” column support legs. For dryers without a bottom front platform, bolt the required column support leg to the I-beam on top of the dryer tongue. Use ½" x 1-1/2" hardware. For dryers with the bottom front platform, bolt the required column support legs with 1/2" x 5-1/2" hardware to the 044304 support tabs fastened to the cross support tube underneath the platform.

Figure 142. Column (Platform) Support Legs

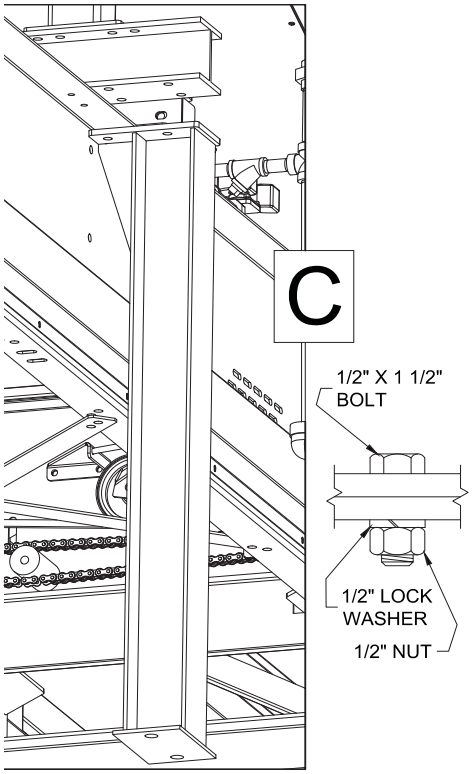


Figure 143. Bottom Platform Column Support

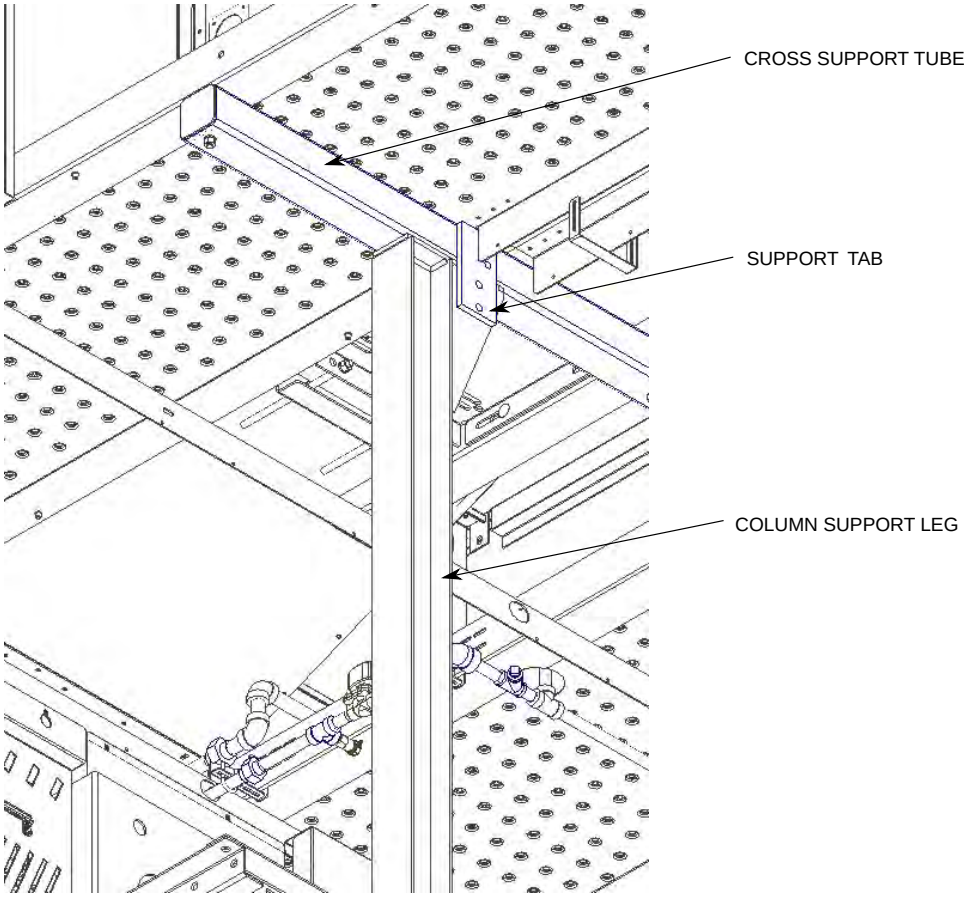


Table 14. Column Support Legs

Part Number	Where Used	Elevation		Length	
		inches	mm	inches	mm
7712905	For dryers without bottom front platform	48	1220	65-3/8	1661
7712918		60	1524	77-3/8	1965
7715832	For dryers with bottom front platform	48	1220	68-1/4	1733
7715833		60	1524	80-1/4	2038

Note

Use 1/2" x 1-1/2" bolts, flat and lock washers and flange nut.

4.10.3 Anchor Lower Section to Pad/Foundation

1. Install anchors in the dryer leg as specified in the anchor manufacturer's recommendations.
2. Regardless of the method used, double-check and verify proper assembly. Make sure anchors are installed properly and are secure.

Important

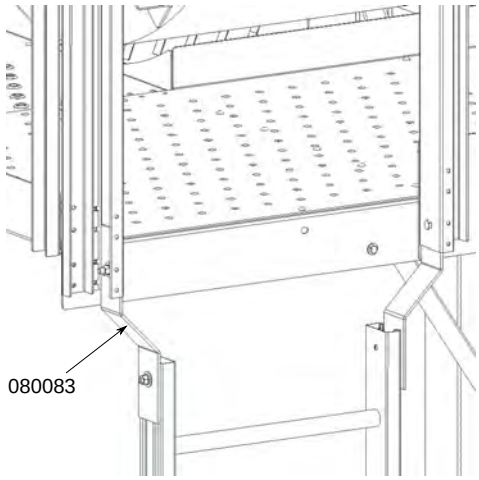
Check verify that all anchors are tight and correctly installed according to the anchor manufacturer’s specifications.

4.10.4 Anchor Bottom Platform

If the dryer includes the optional bottom front platform, the installation of the ladder and control panel support legs must be done in the field.

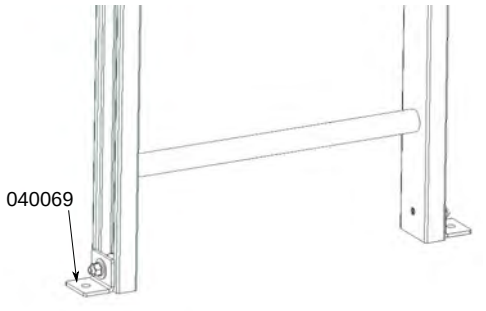
1. An 8' ladder assembly is shipped with the bottom platform, with 080083 ladder connection plates and 040069 anchor brackets on the bottom. Loosen the 040069 anchor brackets and slide them out of the way. Cut the ladder to the required length, and then secure the 040069 brackets back in place at the bottom of the ladder.
2. Connect the 080083 plates to the platform rails using the provided hardware.

Figure 144. Bottom Platform Ladder



3. Anchor the 040069 brackets to the concrete pad to secure the bottom of the ladder. Follow the anchor manufacturer's recommendations for installation.

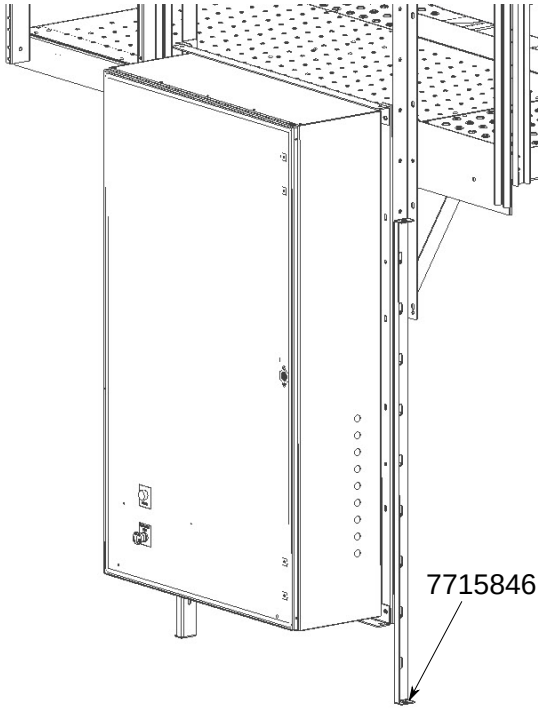
Figure 145. Bottom Platform Ladder Anchor



Important

At the same time, the control panel should be lowered to a comfortable working height and the panel support legs should be lowered to the ground. Support the control panel with a forklift and then loosen the hardware supporting the vertical rails on the back of the panel as well as the 7715846 support legs. Once the panel is at the appropriate height and the legs are firmly resting on the ground, reattached all components with the removed hardware. Anchor the support legs to the ground, following the anchor manufacturer's recommendations for installation.

Figure 146. Anchor the Panel Support Legs



4.10.5 Stack and Secure Sections

⚠ WARNING Do NOT stack any additional sections on top of the bottom section unless it is secured to the foundation.

Important

The following stacking information is applicable for:

- Upper dryer sections made up of three to six tier levels.
- Top-most filling dryer section made up of one or two tier levels and the topside filling system.

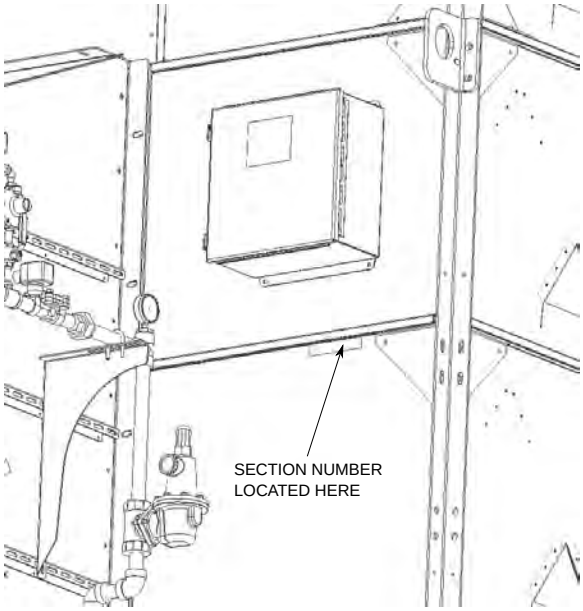
Note

All styles of fill systems, including catwalks and/or safety cages, should be completely assembled on the ground and then lifted into position and secured.

Overview

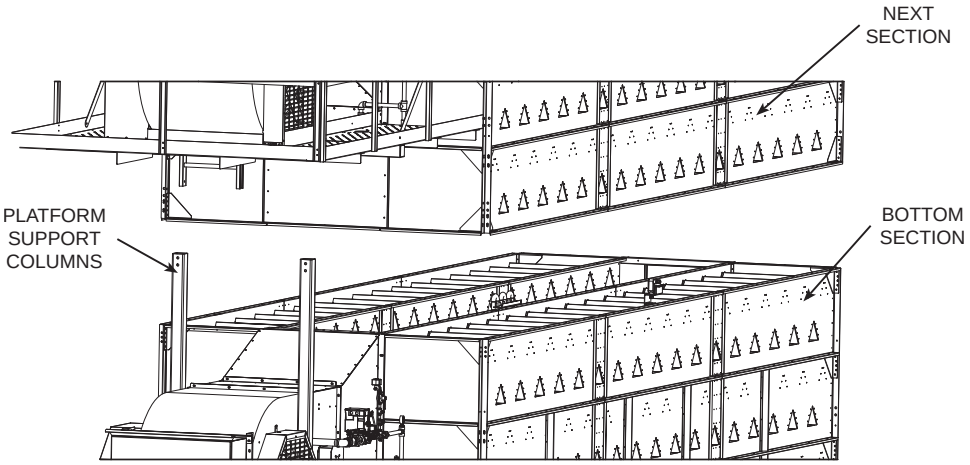
1. Refer to the information contained in Section 2. – Features on page 19 and Section 6.1 – Dryer Tier / Ladder / Shipping Layouts on page 202 for specifics on layout and stacking order.
2. Depending on the dryer model configuration, some parts are installed at the factory whereas other parts require installation as the sections are stacked.
3. STACKING ORDER: If your dryer has multiple sections, be sure to stack the sections in the proper order. Each section has a decal indicating the section number, located just under the flanges below the burner box. Section #1 is the top section. If the decals cannot be located, the motor lead length is also an indicator of order, with the longest motor lead corresponding to the top section.

Figure 147. Section ID Tag



4. LP FUELED DRYERS: Be careful of the LP vaporizer coils when stacking sections; they stick up slightly and can be damaged.
5. PLATFORM SUPPORT COLUMNS: These are shipped secured to the platforms and should be mounted at the bottom to the platform support angles prior to adding the next dryer section.

Figure 148. Stacking Sections



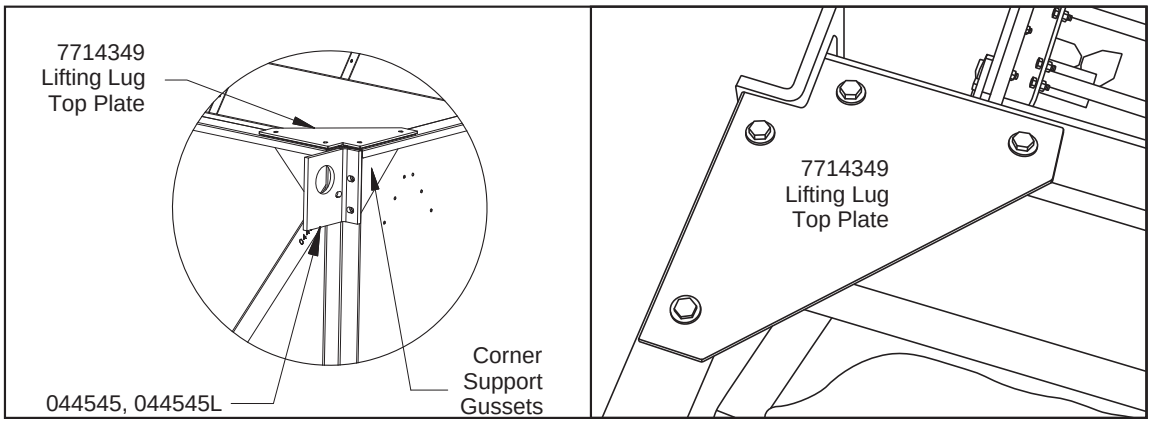
Remove Lifting Lug Top Plates

1. Prior to stacking any dryer sections, remove all 7714349 lifting lug top plates from corners of the lower section already in place. If these are left in place, the next sections flange lips will NOT position correctly.
2. ALL of the factory mounted corner support gussets must stay attached.

Note

Lifting lugs can be left in place or removed. If removed, replace the hardware.

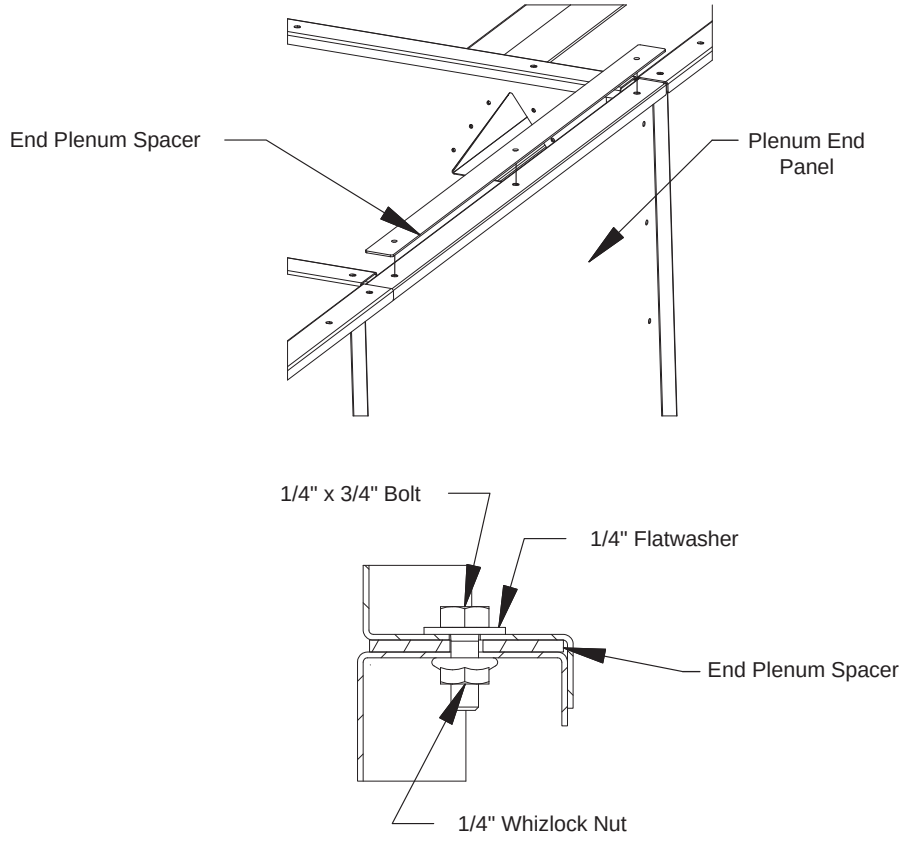
Figure 149. Remove Lifting Lug Top Plates



Install Air Plenum End Panel Spacers

1. Position 044380 plenum end panel spacer for installation where ANY two air plenum end panels meet together.
2. Position as shown in Figure 150.
3. Secure when outside flange lips are bolted together.

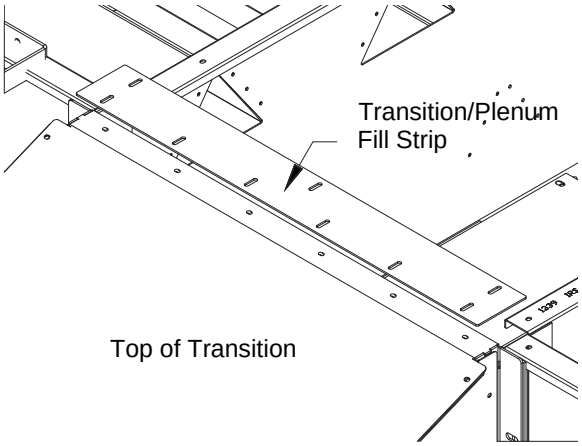
Figure 150. Install Spacers Between Any Two Air Plenum End Panels



Install Transition/Plenum Fill Strips

1. When the transition lip is level with the dryer sections top tier AND the next section to stack has a plenum end panel, use a 7712699 transition/plenum fill strip to secure the top of the transition to the underside lip of that next stacks plenum end panel.
2. Use 1/4" x 3/4" HB, FW, and WL to secure the strip at both edges.

Figure 151. Install Transition/Plenum Fill Strip



Install Platform Support Columns

1. SKIP to next step if the dryer does NOT have multiple platforms.
2. If the dryer does not have a bottom front platform, mount the LOWER support column directly to the beam. ALL upper sections, or bottom sections with a bottom front platform, use UPPER support columns and mount using #044510 support angles.
3. The support column angles are factory mounted and the support columns for that section are wired to the platform for shipment.

Note

The support columns must be in position PRIOR to the installation of the next dryer section.

Table 15. Support Column Size Requirements

LOCATION & TIER SPAN	COLUMN PART NUMBER	COLUMN LENGTH (" REFERENCE)
LOWER - 3 TIER	7712919	69 - 7/8"
UPPER - 3 TIER	7715019	68 - 3/16"
LOWER - 4 TIER	7712920	93 - 7/8"
UPPER - 4 TIER	044516	92 - 3/16"
LOWER - 5 TIER	7712921	117 - 7/8"
UPPER - 5 TIER	040117	116 - 3/16"
LOWER - 6 TIER	7712922	141 - 7/8"
UPPER - 6 TIER	7714832	140 - 3/16"

Figure 152. Lower Column with Flange Weldment

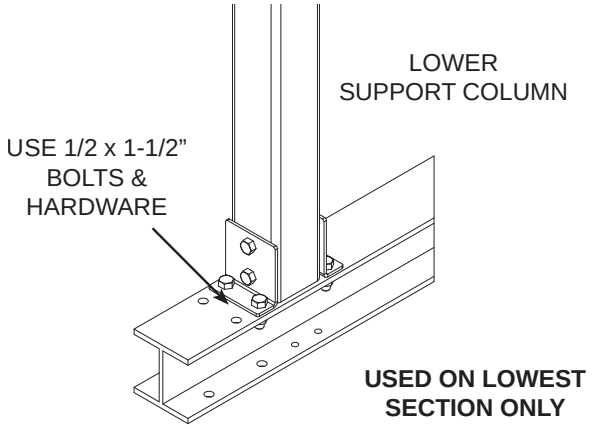
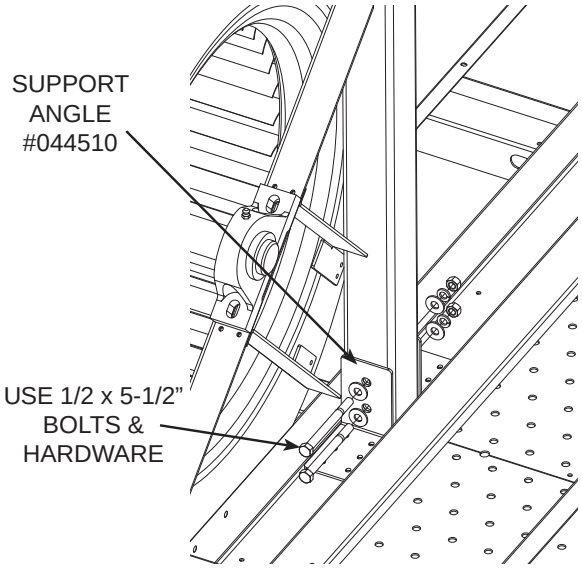


Figure 153. Upper Column with Support Angles

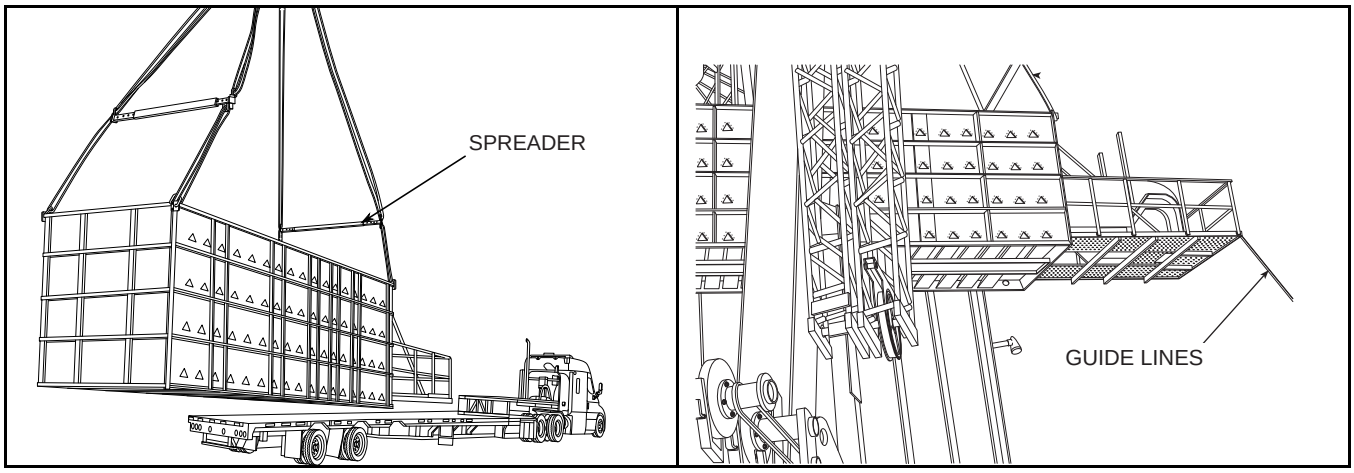


UPPER column with support angles

Raise the Next Section and Lower into Position

1. Either MINIMIZE strap angles or use a spreader system to raise the sections.
2. Use the support columns as guides and lower the section into initial position.
3. Ensure that the lowering flange lips overlap properly all around.

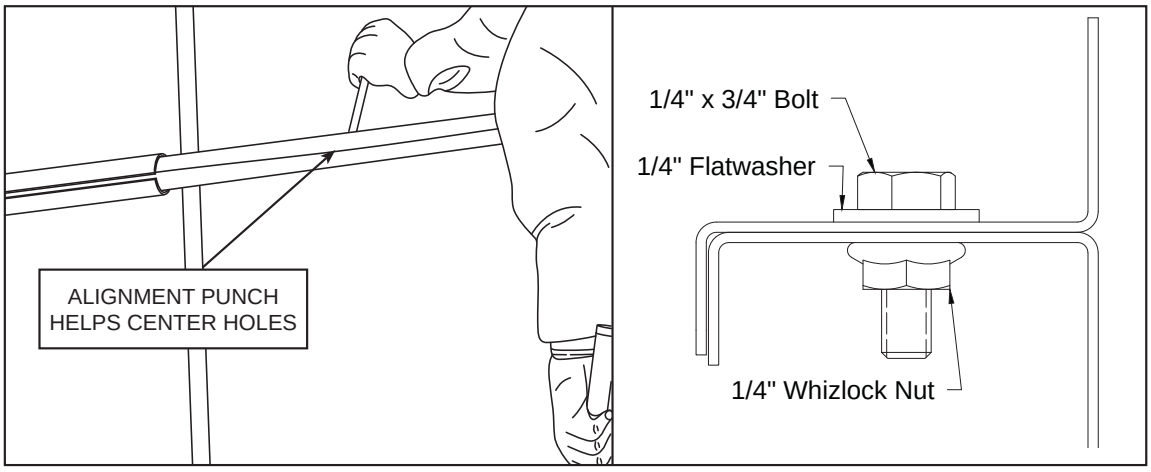
Figure 154. Raising/Lowering Sections



⚠ WARNING Do not remove crane from supporting the load until all assembly/installation for that section is complete.

4. Line up flange lips and secure the four corners first to ensure position is held.
5. Make sure all bolts are present and tight.

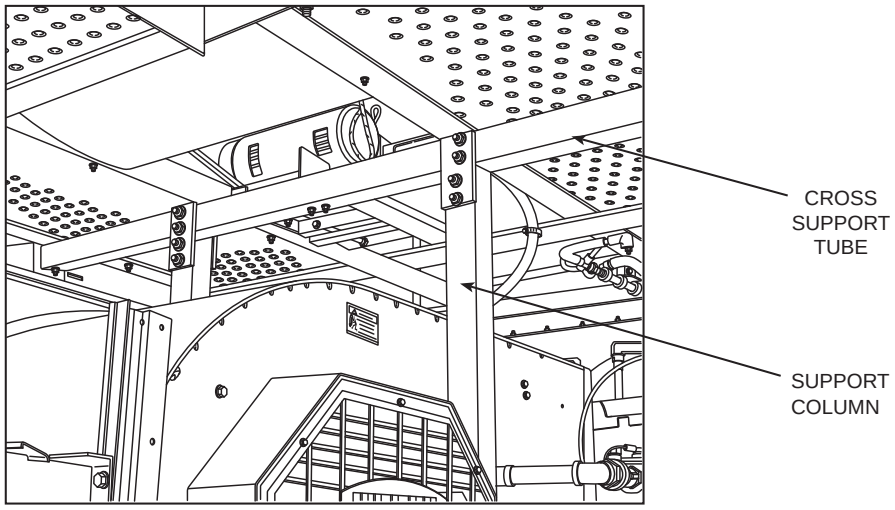
Figure 155. Outer and Inner Overlapping Lip Connection



Secure Platform Support Columns

1. Using 1/2" x 5-1/2" bolts and hardware, secure the support columns to the 044304 support tabs fastened to the cross support tube.

Figure 156. Secure Top of Platform Support Columns



Important

Note orientation of splice plates.

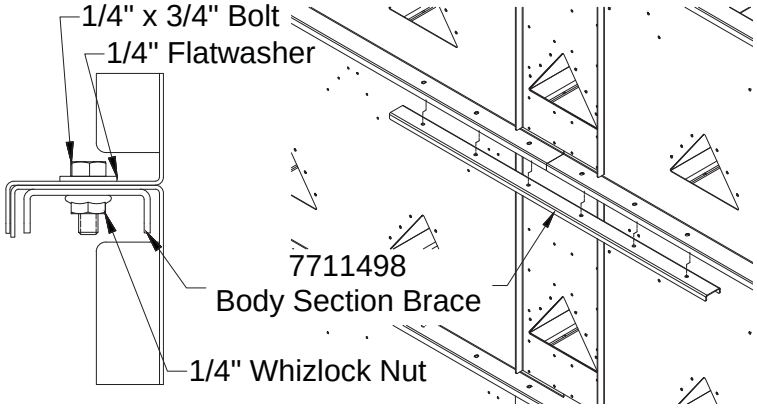
Install Body Section Braces

1. Position and bolt a 7711498 body section brace under the overlapped outside and inside flange lips, centered directly under ALL tier splices.
2. Repeat, completing ALL exterior braces first.

Note

On model D24108, shipped in sections (NOT assembled and towed) a divider floor will be installed in the plenum. The divider floor provides the needed support, so the INTERIOR body section braces are not needed for that level ONLY.

Figure 157. Body Section Brace Connection



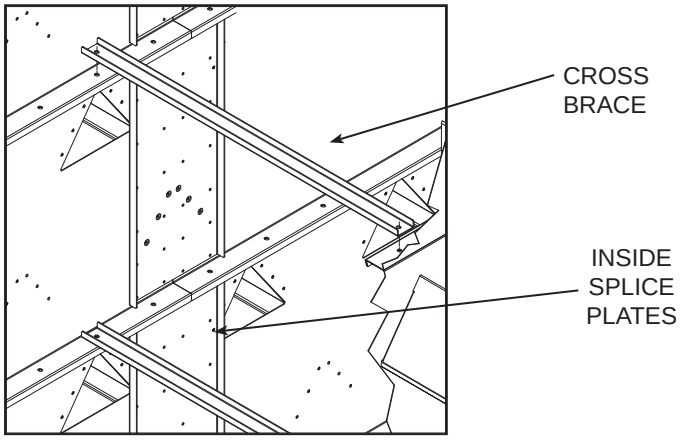
Attach Cross Braces

Note

DO NOT install cross brace on tier levels that have a divider floor or cooling floor. Skip to the next step. Both of these floor structures provide the necessary cross stability without the use of cross braces.

1. Using 1/4" hardware, attach 044074 cross braces at or near every inside splice plate location.

Figure 158. Attach Body Section Cross Braces



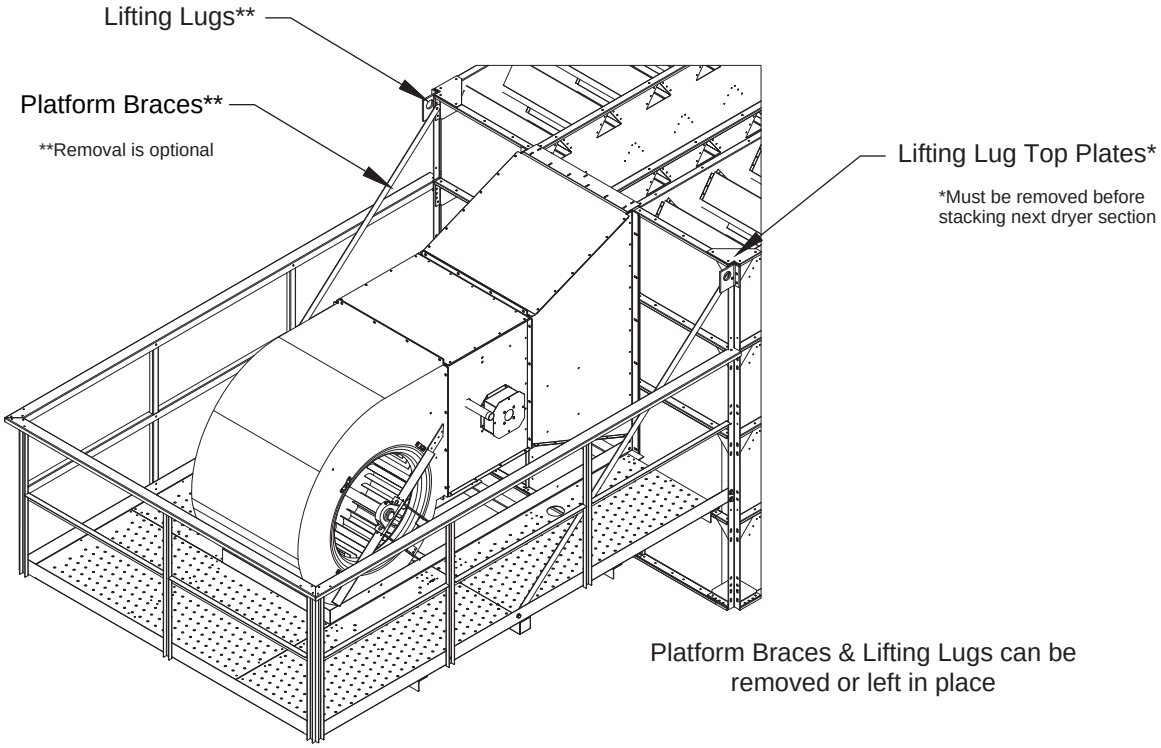
Optional Removal of Platform Braces / Lifting Lugs

Note

The following items can be removed AFTER the dryer section has been stacked and secured:

- The platform shipping braces can either be left in place or removed.
- The lifting lugs can either be left in place or removed.
- Be sure to replace all hardware removed if either of these are taken off.

Figure 159. Lifting Lugs and Platform Braces Removal

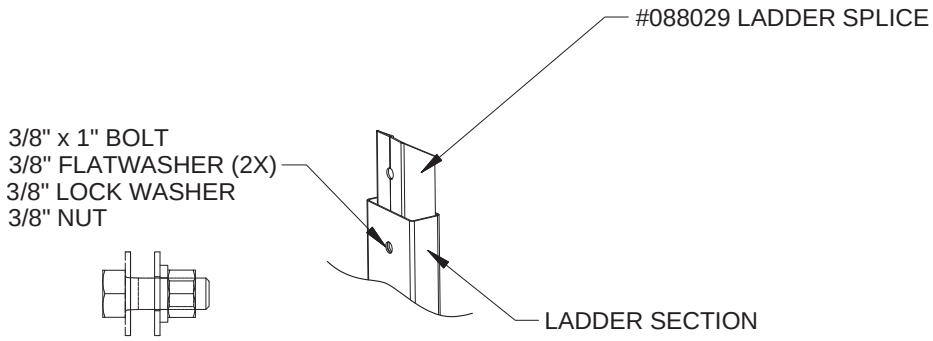


Attach Ladder Sections

Refer to Section 6.1 – Dryer Tier / Ladder / Shipping Layouts on page 202 for information on necessary ladder section lengths and placement.

1. Exterior ladder location depends on model type. Single blower units have the ladder system mounted at the rear of dryer, to the RIGHT of the plenum door (unless the dryer has a left-hand extended discharge, in which case the ladder is to the LEFT of the plenum door). Dryers with multiple platforms have the ladder system mounted at the front of dryer, going up through the platform floors, on the opposite side of the transition from the fuel train.
2. Except for the upper-most ladder section that reaches to the catwalk, ladders are pre-installed on the dryer sections. As sections are stacked, adjacent ladders are connected to each other with 088029 ladder splices as shown. Ladders may need to be adjusted up or down during this process for proper alignment.

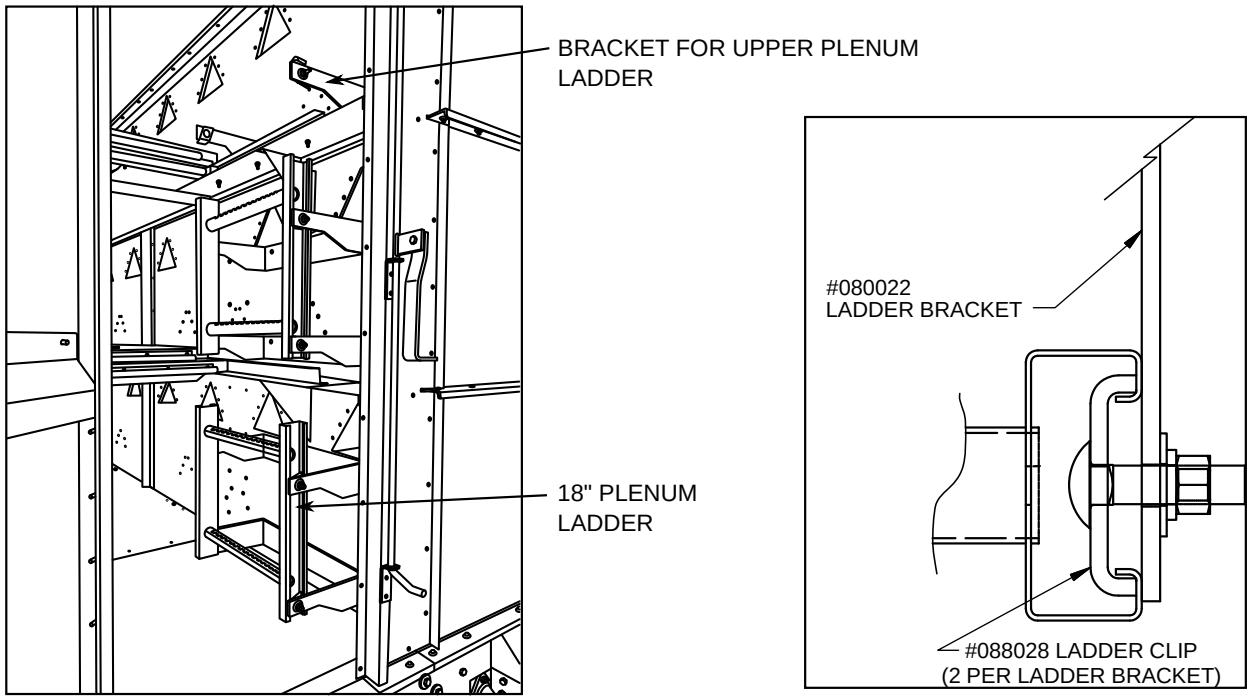
Figure 160. Bolt Ladder Sections Together with Ladder Splice



3. Interior plenum ladders are installed in the rear of the dryer, on the right side of the plenum as you enter. For dryers with cooling floors, 18" ladders are installed at the factory between the bottom floor and first

cooling floor, and between the two cooling floors. For all other ladders, the necessary ladder brackets are factory-installed in the plenum, but the ladders themselves are shipped separately. Following the layout found in Section 6.1 – Dryer Tier / Ladder / Shipping Layouts on page 202, install the remaining ladders by connecting the ladders to the 080022 brackets using the 088028 ladder clips.

Figure 161. Plenum Ladder



Install Topside Filling Section

WARNING Be sure to utilize spreader bars or similar means to properly lift the unit. The main lift component should be vertical. Do not use sharp angles on strapping.

Important

Assembly of the topside filling section, attached to the top-most tier section, should already have been done at ground level.

1. Ensure the topside system is completed to this level before proceeding further.
2. Make sure the 7714349 lifting lug top plates were removed for the section being stacked upon.
3. Lift the completed topside filling section as one completed unit. Use guide lines to assist in positioning.
4. Be sure the safety cage 080083 ladder attachment brackets or final ladder section line up correctly with any existing ladder sections.
5. Install the topside filling section into the final position and secure it.

Figure 162. Lift the Assembled Topside Filling Section

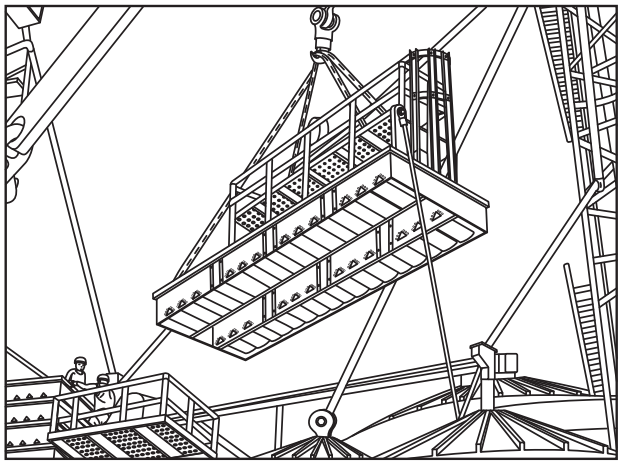
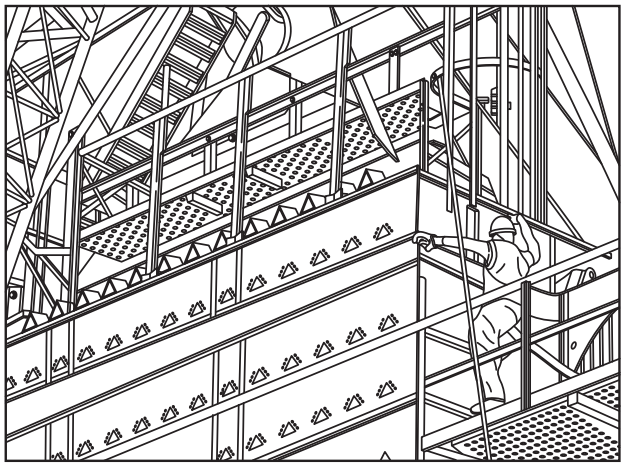


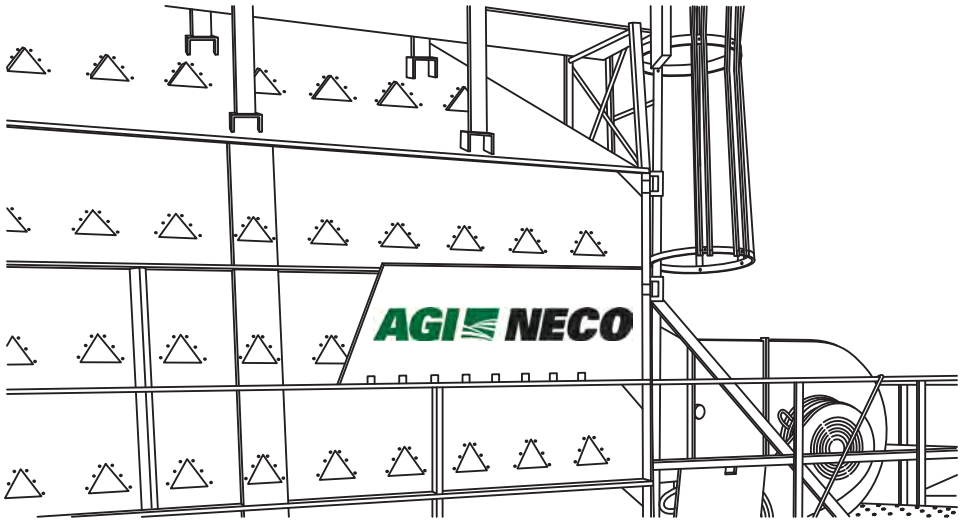
Figure 163. Install into Final Position and Secure



4.10.6 Install NECO Logo Bracket

1. Install the NECO logo bracket assembly (1-169876) so that it can be viewed from a main road if at all possible.
2. Note that the bracket has four mounting tabs with holes that will line up with dryer tier section mounting bolts.
3. Remove the necessary four sets of tier lip hardware.
4. Position the bracket.
5. Replace the four sets of hardware to secure the logo bracket.

Figure 164. Example of a Mounted Logo Bracket Assembly



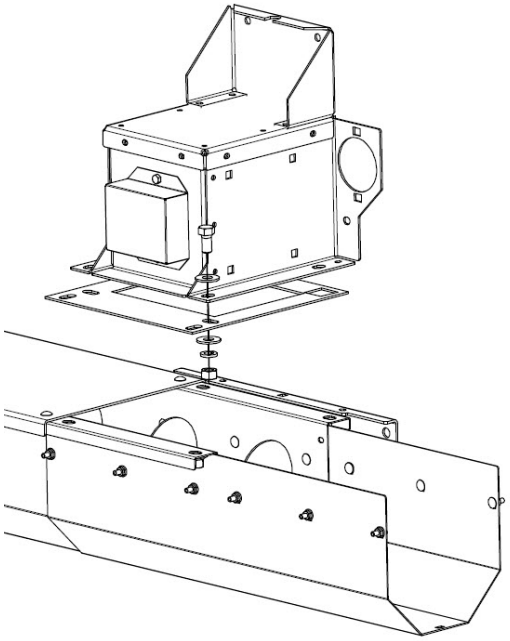
4.10.7 Install the Cross Auger or Cross Drag

Auger Unload

Dryers with a non-extended left, right, or center discharge come with the cross auger pre-assembled on the dryer. In these cases, skip to step 4. For extended discharges, the cross auger must be installed in the field.

1. Cross augers extended 2' are shipped as a single unit. Cross augers extended further than 2' are shipped as two units – an intake assembly and an extension assembly. Mount either the 2' extended cross auger or intake assembly to the spouts on the rear of the dryer using ½" x 1" bolts as shown. The center top cover may need to be removed for access.

Figure 165. Cross Auger Extension



2. For two-piece cross augers, connect the extension assembly to the intake assembly. The long top cover may need to be removed for access. Attach the extension trough to the trough splice using ¼" x ¾" carriage bolts and whiznuts. Connect the extension auger to the connecting shaft on the intake assembly using ½" x 2-1/2" bolts and locknuts. The auger should be timed such that the ends of the flighting are rotated approximately 180 degrees apart.

Figure 166. Extension Trough

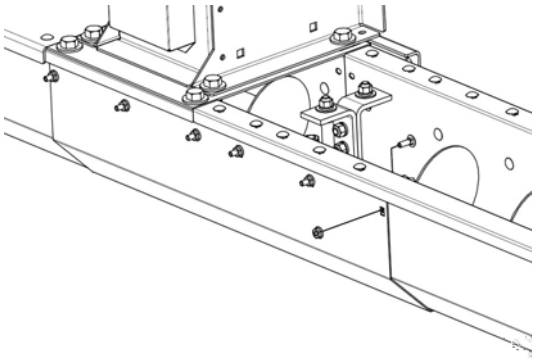
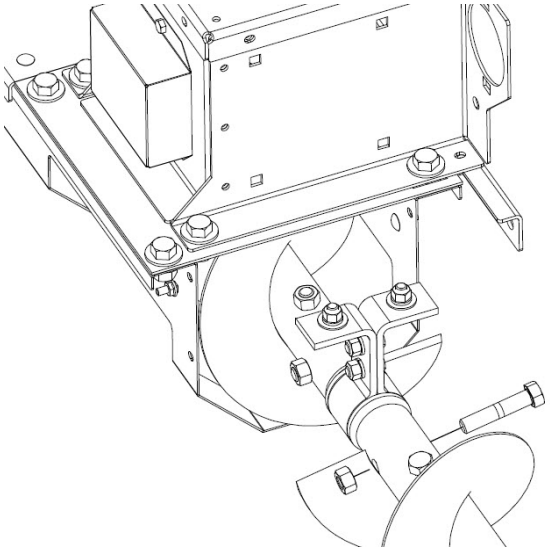
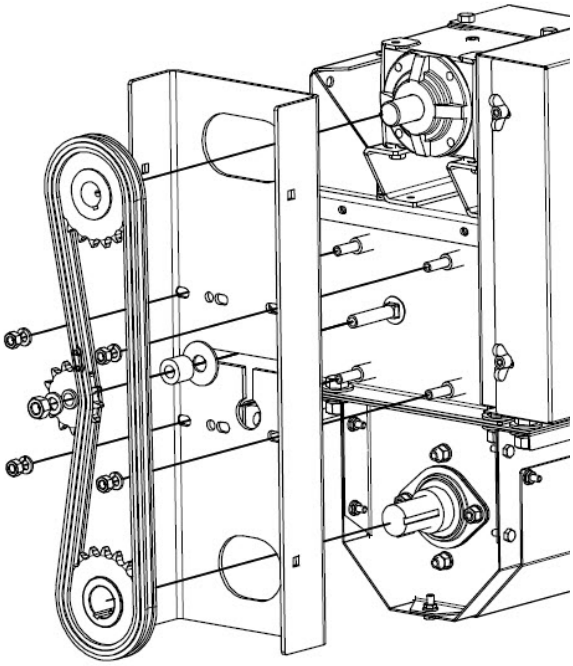


Figure 167. Extension Trough



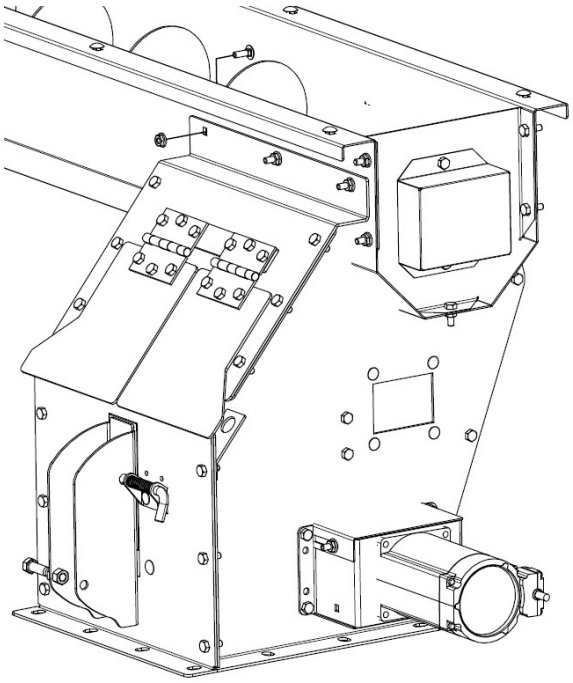
3. Install the chain drive connecting the rear gearbox to the cross auger. The rear chain guard is mounted on the four standoffs shown below. Mount the provided sprockets to the exposed gearbox shaft and the cross auger drive shaft. Loosely mount the idler sprocket to the rear chain guard as shown. Verify all sprockets are aligned and adjust if needed. Route the roller chain as shown, slide the idler sprocket to tension the chain, and then tighten the sprocket mounting hardware to secure in place. Install the outer cover over the chain drive using the provided 5/16" x ¾" carriage bolts and wingnuts.

Figure 168. Rear Chain Guard



4. Install the discharge chute using ¼" x ¾" carriage bolts and whiznuts.

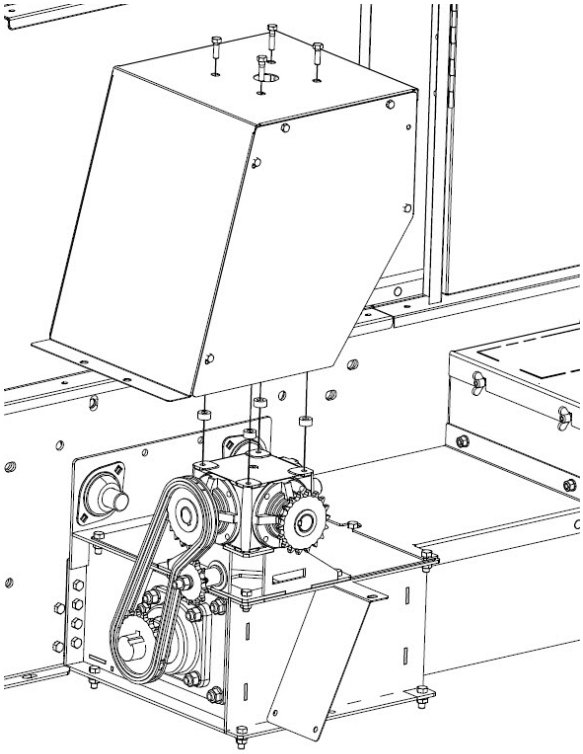
Figure 169. Discharge Chute



Drag Unload

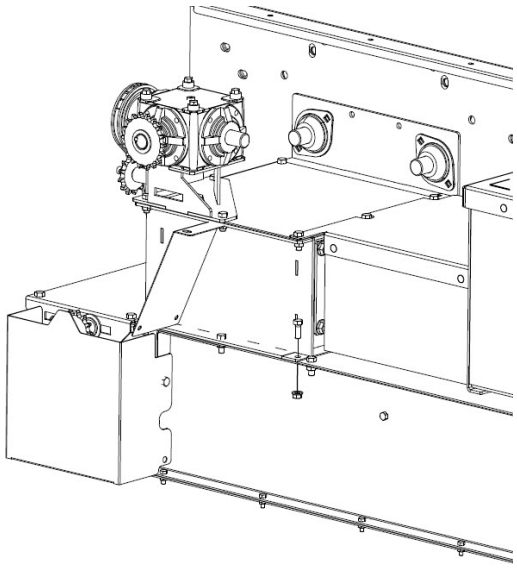
1. To remove the factory-installed cover from the chain drive, remove the four bolts from the top of the cover. Note that the bolts run through spacers between the gearbox and the cover. Take care not to lose the bolts or spacers, and retain for future use.

Figure 170. Chain Drive Cover



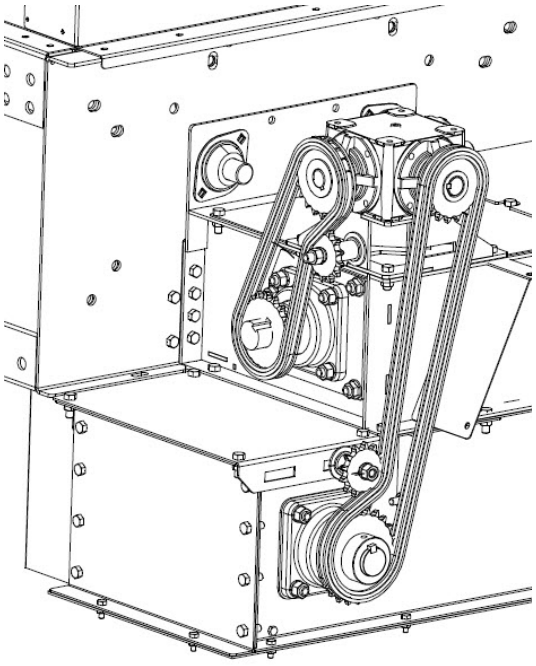
2. Mount the cross drag to the spouts on the rear of the dryer using 3/8" x 1" bolts and whiznuts.

Figure 171. Cross Drag



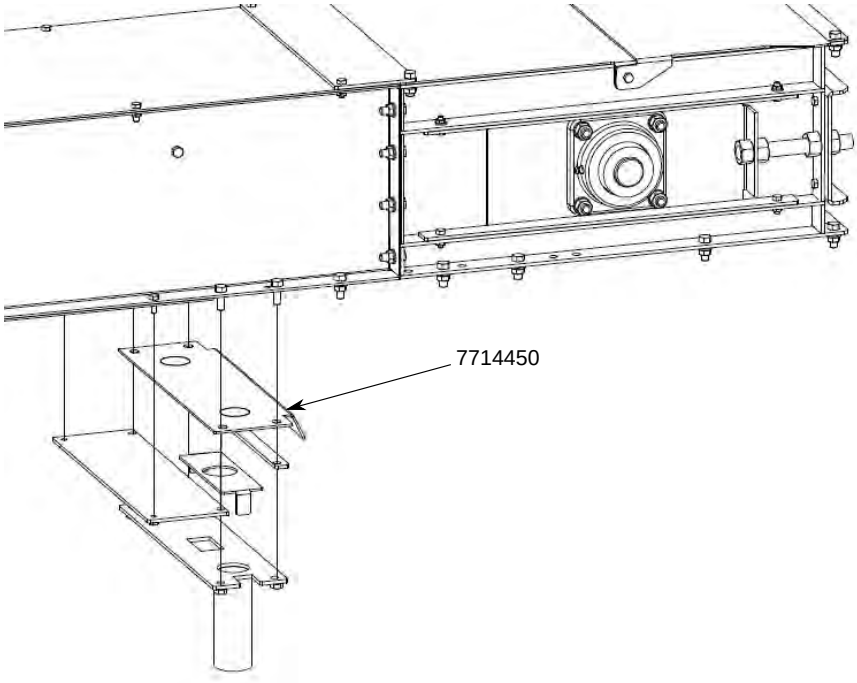
3. Remove the shield that covers the sprockets on the cross drag. Route the provided chain between the sprocket on the rear side of the gearbox and the drive sprocket on the cross drag as shown. Verify all sprockets are aligned and adjust if needed. Use the idler sprocket to tension the chain and tighten in place.

Figure 172. Chain



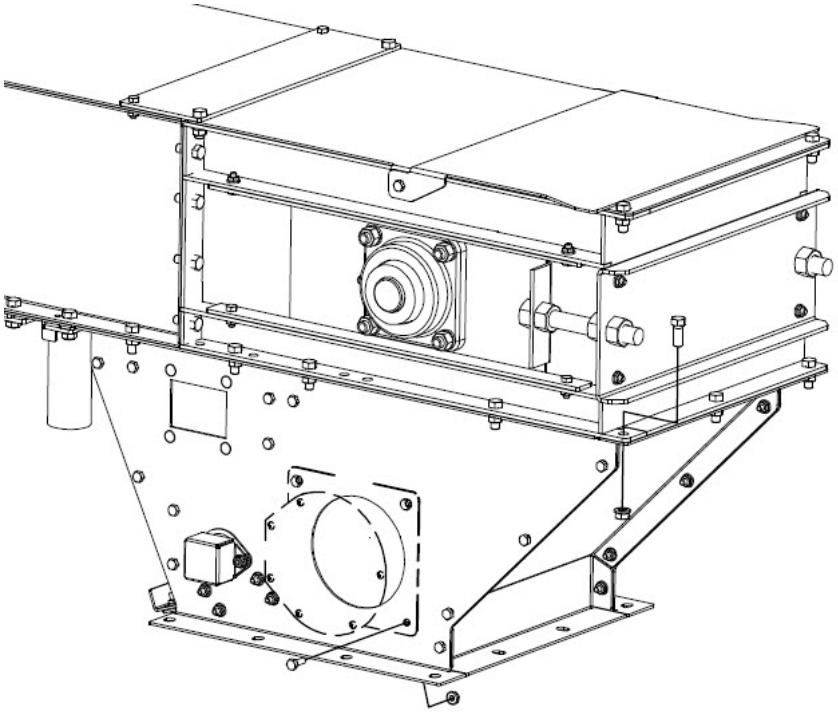
4. Remove the sampler assembly and seal plates to get to the 7714450 trough plate. This plate has two knockouts to accommodate different orientations of the sampler assembly. Remove the knockout in line with the sampler tube. Reinstall the removed parts.

Figure 173. Trough Plate



5. Mount the discharge chute to the cross drag using 3/8" x 1" bolts and whiznuts. Mount the diaphragm switch to the side of the discharge chute using ¼" x ¾" bolts and whiznuts.

Figure 174. Discharge Chute

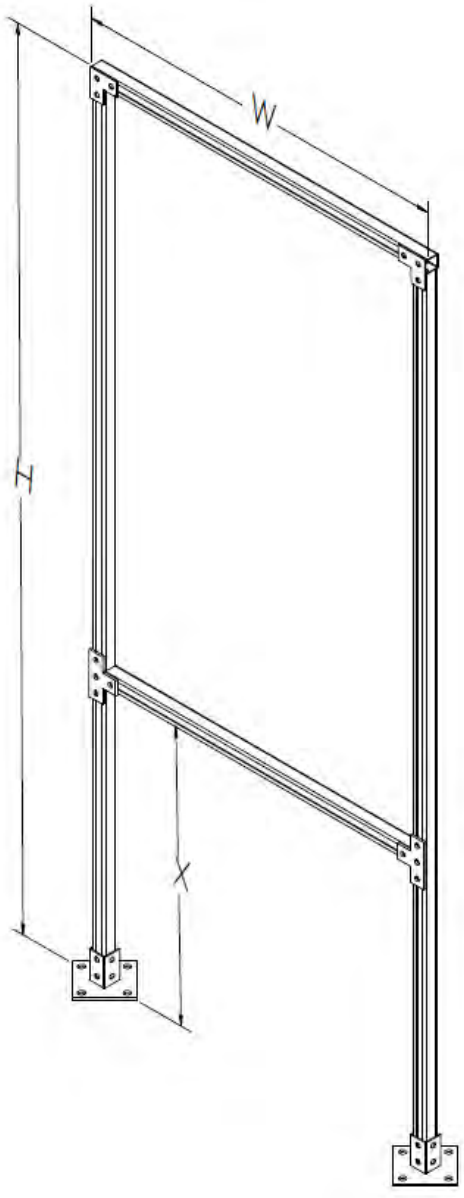


4.10.8 Install the Blower Motor VFDs (Optional)

1. Assemble the VFD stand(s) as shown. Note that there are four different sizes available. Refer to the VFD enclosure model number to determine the correct dimensions to use. Connect the horizontal struts to the “L" and “T" brackets with ½" x 1-1/2" bolts, lockwashers, and channel nuts. Connect the vertical struts to the “L" and “T" brackets with ½" x 2-1/2" bolts, flatwashers, lockwashers, and nuts. Depending on the lifting equipment available and the size of the enclosure, the VFD enclosures can be mounted to the stands on the ground or after the stands have been raised and anchored. The enclosure is mounted to the stand using 5/16" x 1" bolts, lockwashers, flatwashers, and channel nuts.

Figure 175. VFD Stand Components

ENCLOSURE	X	H	W
WF25LP	46-3/8	89-7/8	32
WF40LP	42-3/8	91-7/8	32
WF75LP	38-3/8	95-7/8	44
WF100LP	34-3/8	103-7/8	44



2. Raise the stand into position.
   a. For dryers with a bottom front platform, it's recommended to place the stands along the sides of the platform, as shown. Use the 7716113 and 7716114 brackets to connect the vertical struts to the platform toeboard.

Figure 176. VFD Stands for Dryers with Bottom Front Platform

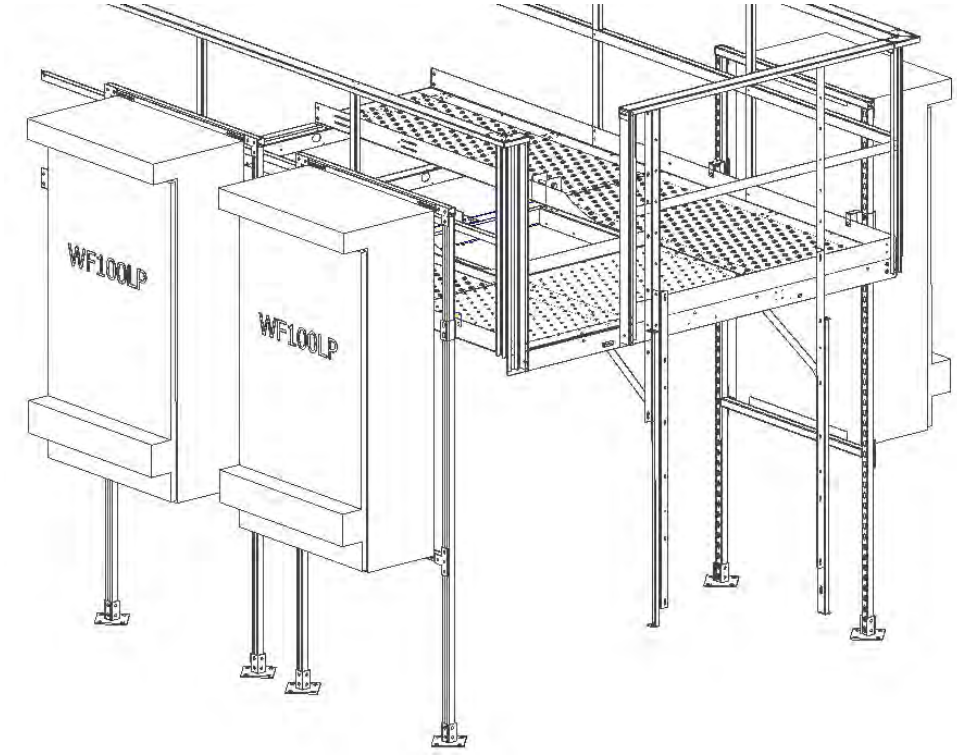
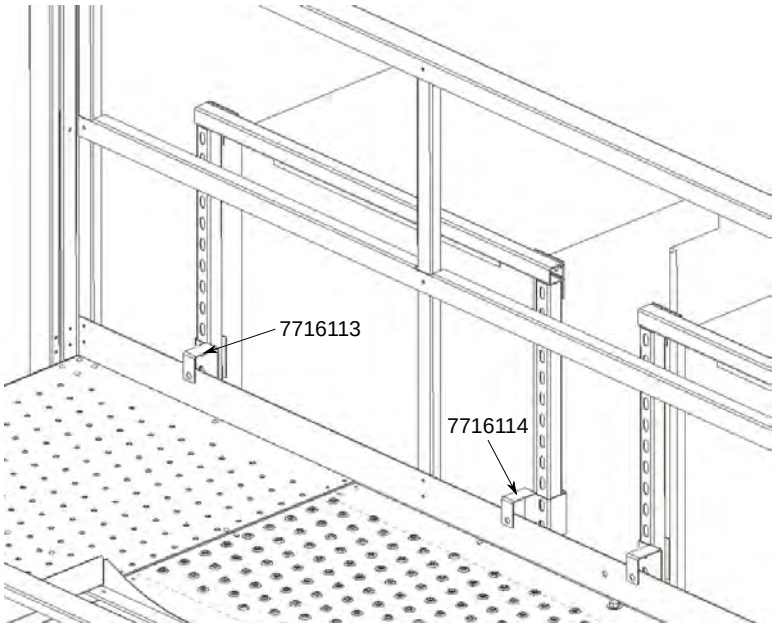


Figure 177. Brackets



b. For dryers without the bottom front platform (typically only single-section dryers when ordered with a blower VFD), it is recommended to place the VFD enclosure next to the main control panel. Use the 7716112 bracket to connect the vertical strut of the VFD stand to the vertical control panel mounting bracket.

Figure 178. VFD Stand for Dryers without the Bottom Front Platform

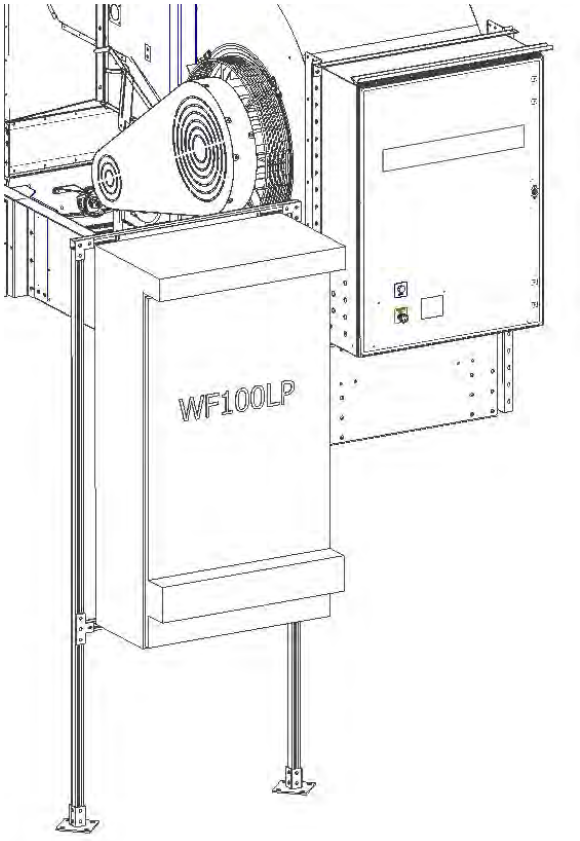
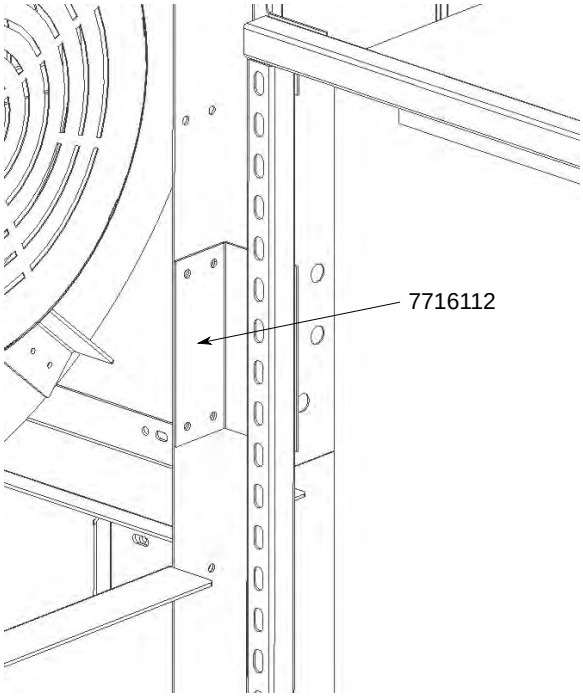


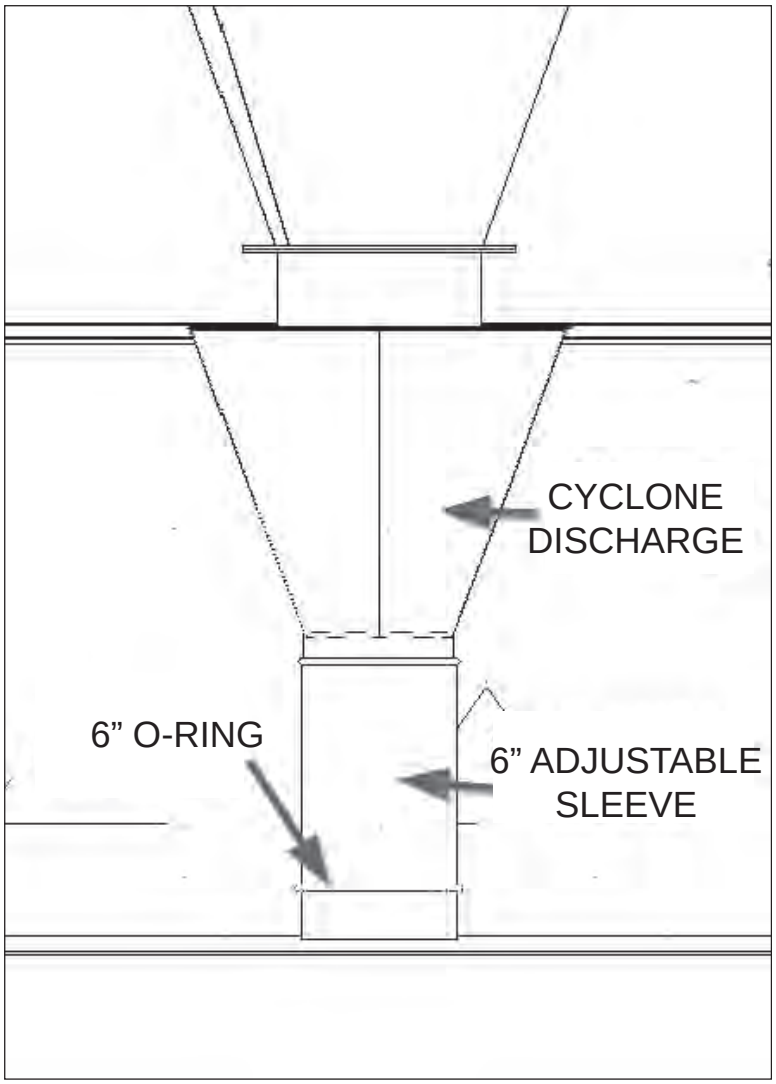
Figure 179. Bracket



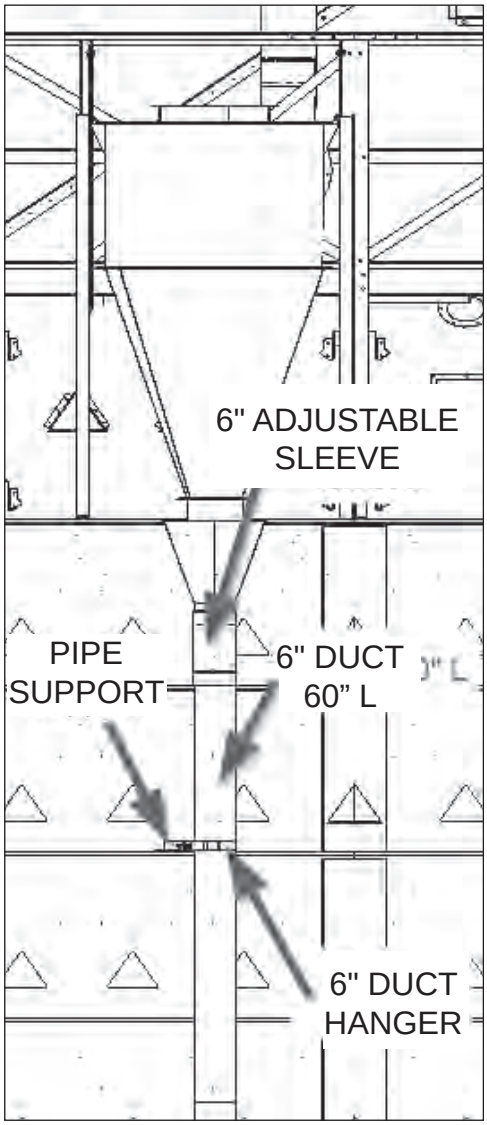
3. Anchor the stand legs to the ground, following the anchor manufacturer's recommendations for installation. If the VFD enclosures were not previously mounted to the stands, do so at this time.

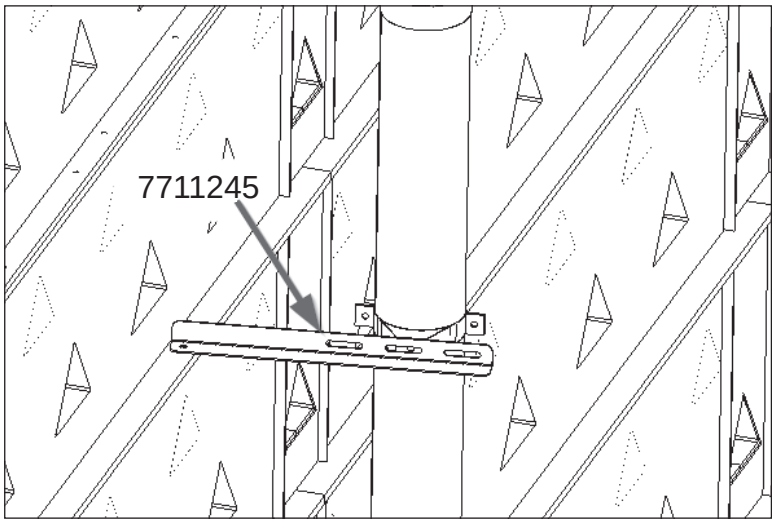
4.11. Installing 6" Discharge Pipe

1. Install the 6" duct sleeve (7711252) onto the cyclone’s discharge. Press the sleeve onto the discharge pipe as far as it will go.
2. Slide the O-ring against the top edge of the duct sleeve. Secure it by placing a 6" pipe clamp (7711257) over the rolled lip and O-ring.



3. Join a 6" duct (7711250) to the pipe sleeve end-to-end using a 6" pipe clamp.
    a. Install a duct hanger (7711261) onto the end of the pipe support flange (7711245) using hand-tightened 3/8" hardware. Attach it to the side of the dryer using a 1/4" bolt re-used from the dryer body side flange.

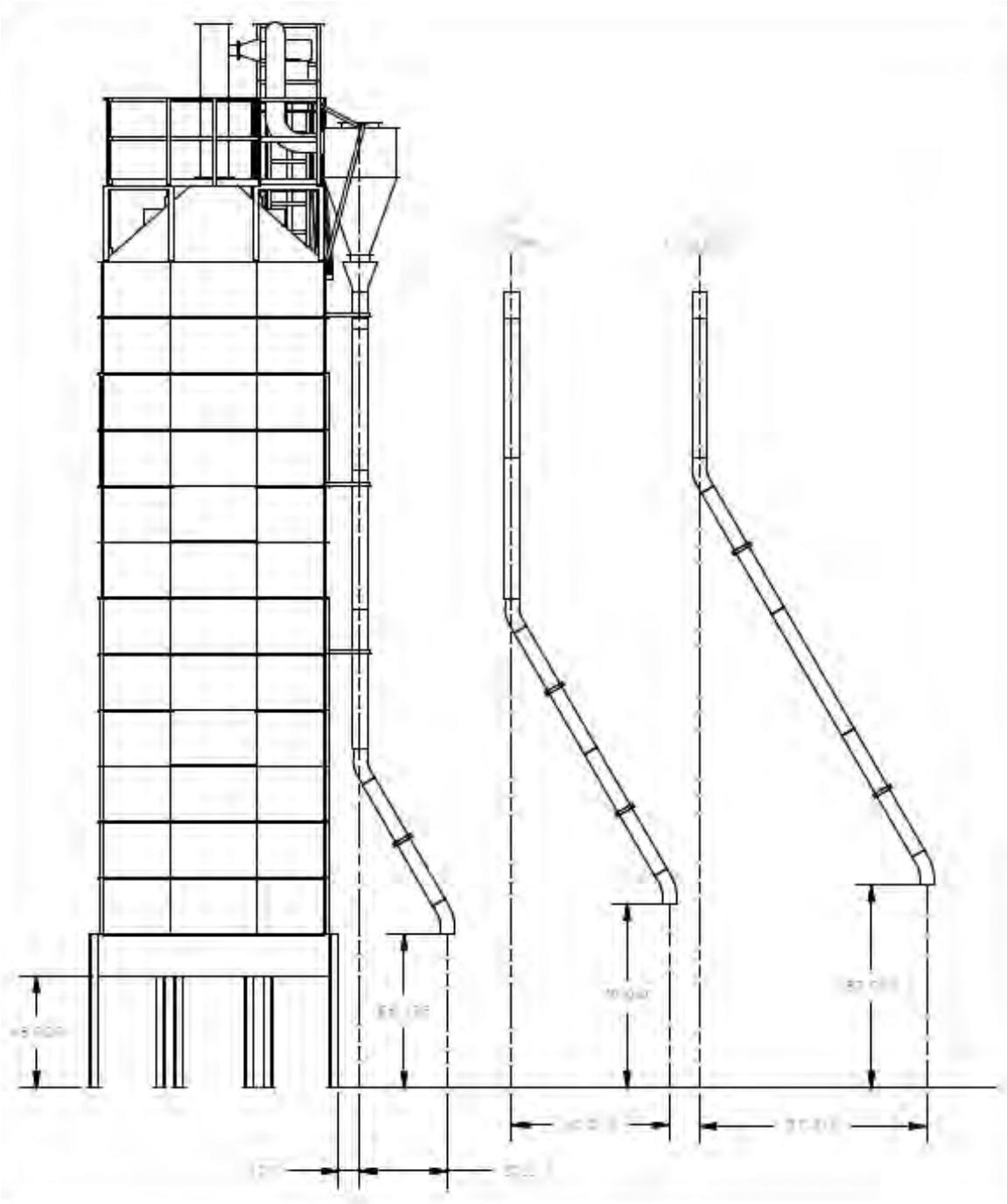




b. Rotate the support flange until the 6" duct sits within the duct hanger. Close the hanger over the duct and tighten all bolts.

4. Repeat the previous step until the desired height is achieved. The provided ducts will reach the top of the dryer frame.

Figure 180. Horizontal Measurement of Discharge and the Dryer



Important

All 6" discharge ducts should be supported by one pipe hanger. Support material varies depending on the chosen configuration and must be sourced independently.

Note

- Two 30° duct elbows are included. These can be used to increase the distance between the discharge and dryer.
- The discharge layout diagram uses 48" legs. For 60" legs, add 12" to all vertical measurements.
- The horizontal measurements depicted in Figure 180 on page 164 are positioned perpendicular to the dryer face.

4.12. Route Motor Harness and Wire Into Panel

1. Disconnect dryer power source before performing any electrical work.
2. Uncoil motor harness and route along the inner toe-board of the catwalk towards the blower side of the dryer. Secure harness using provided conduit clamps.

   Important

   Ensure motor harness is not routed or secured in walkway.
3. Route harness down the dryer and enter the control panel next to the blower motor conduit.
4. Wire motor leads into the VFD according to the schematic label inside the panel.

4.13. Programming (M241 PLC)

1. At HMI touch screen, log in and go to the Set up menu. In the top right-hand corner, it will identify which PLC and HMI program that is currently installed on your dryer. These program numbers must match and be greater than 300.7, preferably program 301.1. Update your dryer if necessary.
2. Next Return to the Set Up main and enter the dryer configuration menu. Along the top of the screen, it will ask for dryer length with 4 options, Level Auger Yes/No, and then Aspirator Yes/No. Press the Aspirator so that it turns green.
3. Return the Main electrical control panel and open the door.

   ⚠ WARNING ***Do not*** touch any electrical components or terminals when the power is on.
4. At the TM171 press and hold the left 2 keys F1 and F3 until "Free" appears on the display.
5. Press F2 and F4 once and "Par" will appear on the display. Hit F4 once and "CF00" will appear on the display.
6. At this point you are inside the parameter menu of the TM171 arrowing up and down will cycle through parameters, pressing F4 will enter and set parameters. ESC/F2 will back out or cancel what has been changed. Inside the parameter, use up or down arrow keys to change the value and use Set/F4 key to confirm the value. Set each parameter according to Table 16. It is also located on the smaller aspirator decal.

Table 16. TM171 Parameters

Parameter	Set Point
CF00	2
CF30/CF35	100
CF31/CF36	4
CF32/CF37	2

7. Next will be changing a few parameters on the VFD itself. Press the down arrow key till Par appears on the screen. The VFD uses a letter/number- two-digit number format for its parameters. First initialize the VFD by going to A1-03 and enter: 2220.
8. Next Set parameters to:
    a. B1-03 to 1
    b. E2-01 to the aspirator motor SFA (information located on aspirator motor name plate)
    c. H2-01 to 000E
9. Close the main control cabinet door and shut off the dryer main supply power. Wait 30 seconds and then turn the power back on and return the HMI screen.
10. At the HMI go to the Fill/Empty Dryer menu. In the upper left hand corner there should be a **Aspirator Start/Stop** button and speed percentage 0%. Set the speed % to 80%.
11. Leave the HMI and return to the main control cabinet (Power is Live act with caution). Open the back door and if set up correctly your VFD screen should Read "F50.00".

    Important

    Close the cabinet door securely. Verify that the Aspirator is ready to be turned on and that no one will be harmed when activated.

12. Return to the HMI touch screen and press the **Aspirator Start**button. You should now be able to hear the aspirator fan kick on. Check fan for proper rotation direction. If motor rotation is incorrect, do the following:
    a. Disconnect the dryer from the power source and wait 30 seconds after the VFD display screen shuts off.
    b. Swap 2 legs of the motor leads to reverse motor rotation
    c. Re-connect the dryer power source.

Optionally, shut off power to the dryer. Open the main control cabinet, open the door. At the TM171 after verifying operation of the aspirator it is now safe to cut flush any non-used wire.

4.14. Final System Hookup

4.14.1 Adjust Control Box Height

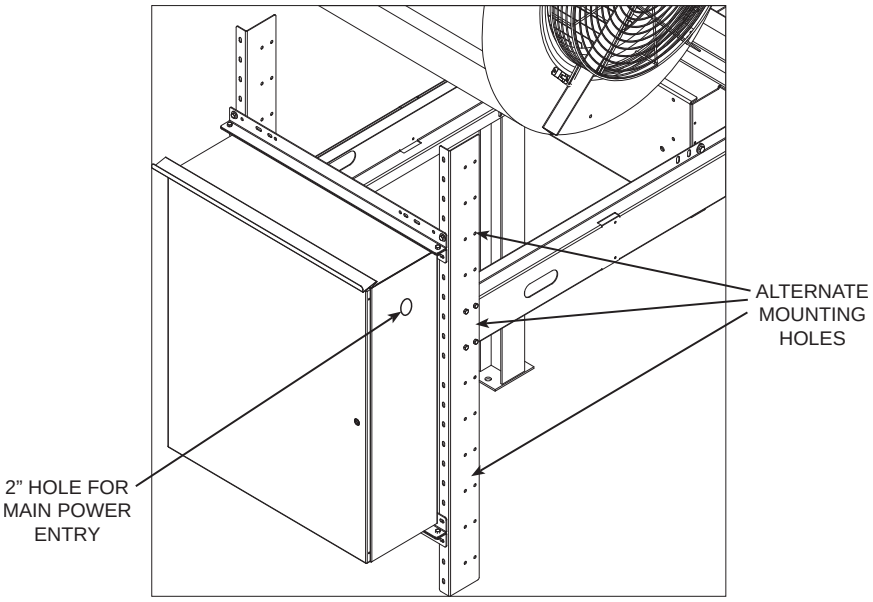
⚠ WARNING Support the weight of the main control box with a forklift or other secure means when adjusting the height.

Note

For dryers with the optional bottom front platform, the control box height adjustment is addressed in Section 4.10.4 – Anchor Bottom Platform on page 143.

1. Loosen the fasteners that hold the control panel in place.
2. Adjust the vertical guide rails upward or downward as necessary.
3. Position the control panel at a comfortable operator height.
4. Secure it in position.

Figure 181. Adjusting the Control Box Height



4.14.2 Final Electrical Hookup

Note

NECO recommends hiring an expert for proper advice, accurate paperwork, and safe procedures to complete electrical work in conformance with local codes.

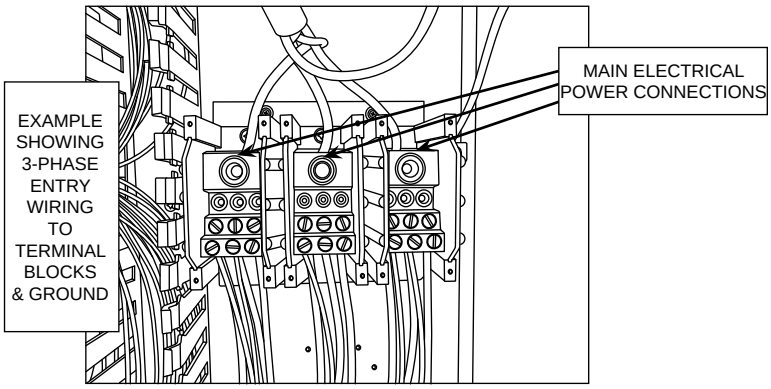
Note

For dyer installations in Canada: Electrical disconnect shall be installed and all wiring must be done in accordance with the Canadian Electrical Code, Part 1, CSA C22.1.

- The customer is responsible for providing wiring materials and labor to the dryer system.
- A properly sized fused disconnect box must be in place PRIOR to completing final connections to the dryer control box. All personnel should know the location and how to operate it.

- Due to the various possible configurations, power to the main control panel must be installed by the electrical contractor in accordance with the amperage requirements stamped on the control box front door tag, located in the lower-left corner. (See also, Section 4.4.3 – Set Up Electrical Supply on page 37.)
- For main power entry location, see Figure 181.

Figure 182. Three-phase Connections



4.14.3 Blower Motor Wire(s)

Note

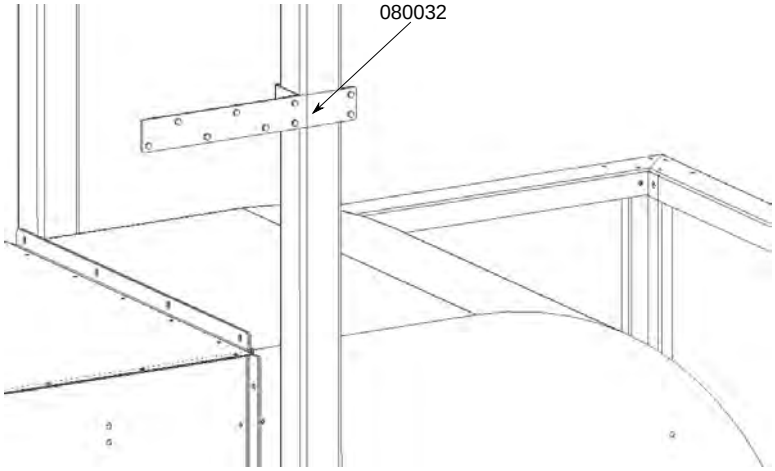
Blower #1 is always the top-most blower.

For dryers *without* blower VFDs route the blower motor harnesses from all upper sections down to the main control panel (bottom section blower motors are already connected to the panel at the factory). Holes are available on the left side of the main control panel, near the bottom.

For dryers *with* blower VFDs, route all blower motor harnesses to the corresponding VFD enclosure(s) and route the power and control harnesses from the VFD enclosure(s) to the main control panel. Holes for the harnesses must be field-drilled on the bottom or low on the side of the VFD enclosure(s).

In either case, one or more 080032 conduit hangers are included to help route and mange the upper blower motor harnesses. Clamp the hanger assembly to a convenient location on the drive-side support column, and mount the brackets on the motor harness to the hanger assembly using the provided ¼" hardware.

Figure 183. Conduit Hanger



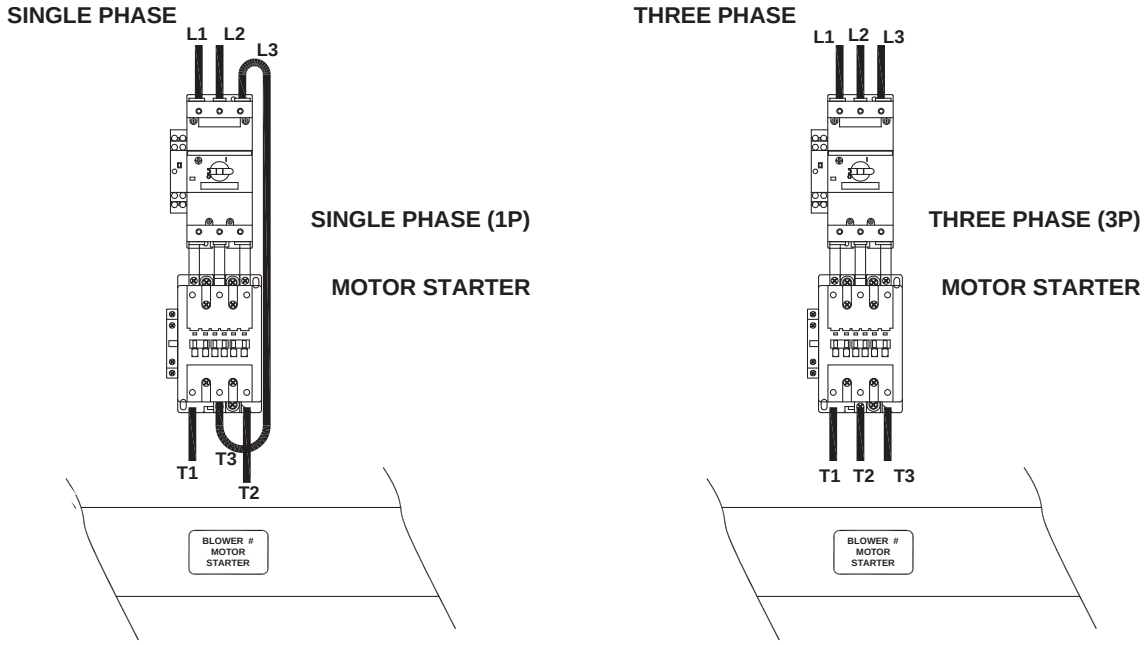
Single Phase (1P) Wiring (Without VFD)

1. Connect wires T1 and T2 into the bottom of the respective starter(s). Note that T3 loops from the lower-middle position back up to the upper-right position to provide internal feedback within the control system.
2. Connect the green ground wire to the ground terminal in the control box.

Three Phase (3P) Wiring (Without VFD)

1. Connect wires T1, T2, and T3 into the bottom of the respective starter(s).
2. Connect the green ground wire to the ground terminal in the control box.

Figure 184. Blower Motor Wiring



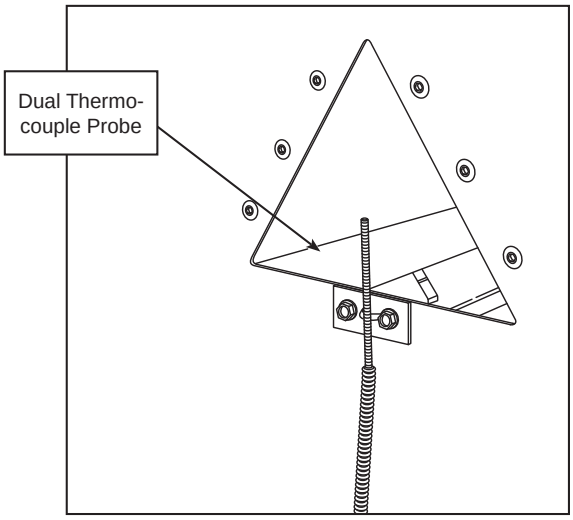
Single or Three Phase Wiring (With VFD)

Connect wires in VFD enclosure(s) and main control panel as indicated in their respective schematics sent with the dryer.

4.14.4 Install the Dual Thermocouple Probe

The dual thermocouple probe is factory mounted for each dryer section. The probe measures temperature for high-limit temperature control in each dryer section.

Figure 185. Dual Thermocouple Probe

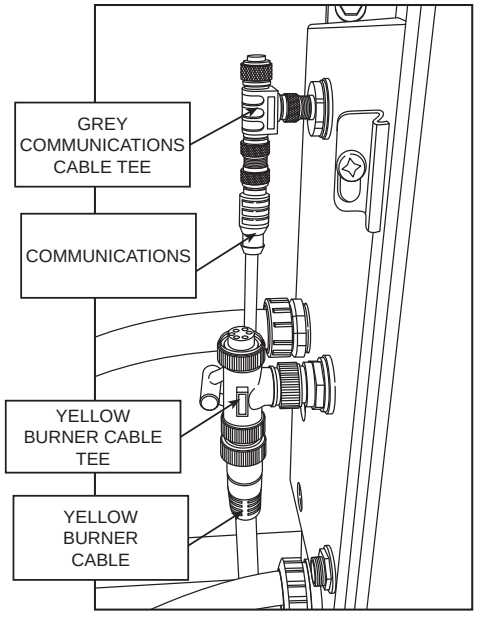


*4.14.5 Install Burner Box Cables**

*Shipped in the dryer crate.

- The yellow and gray cables and tees are used to connect the burner boxes to each other and to the main electrical panel.
- Directly connect the gray cable to the top burner box. (Do not install the gray tee in the top burner box.)

Figure 186. Burner Box Connections



4.14.6 Install the Fill Switch and Low Switch

- The installation location of the fill and low switches depends upon the style of fill and configuration of the intake grain supply.
- The various installation positions come from the factory, covered with a 059166 cover plate.
- Determine the correct switch position for the equipment configuration.
- Install the switches in the locations shown in Figure 189 – Figure 194. Leave any unused locations covered.
- Connect the wiring as described in Connect Fill Switch and Low Switch on page 175.

Roof with Gravity Fill System (For D Series Dryers)

Gravity fill system intake grain at the center. The intake auger system must match to this location.

Figure 187. Gravity Fill Switch and Cover Locations (For D Series Dryers)

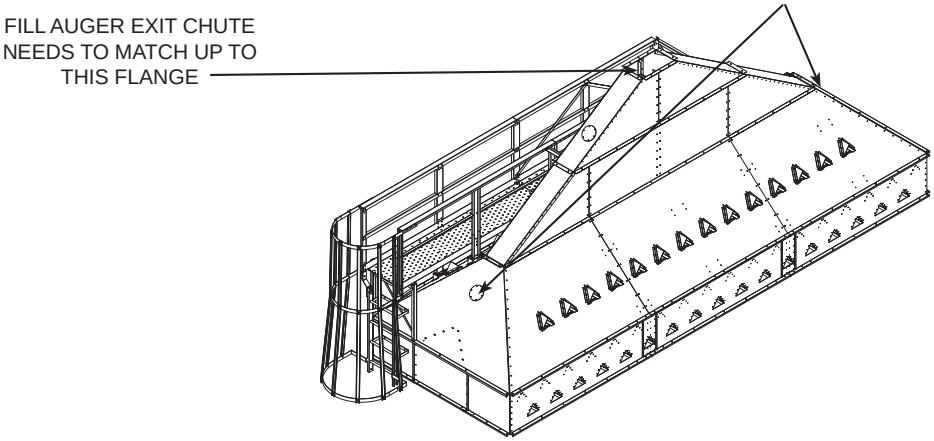


Figure 188. Hole Cover and Switch Flanges (For D Series Dryers)

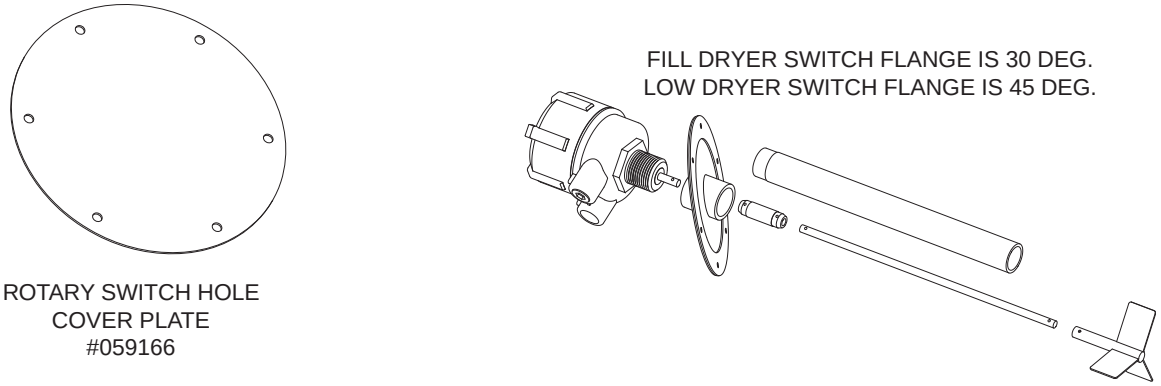


Figure 189. Fill Dryer Switch Location – Gravity Fill System (For D Series Dryers)

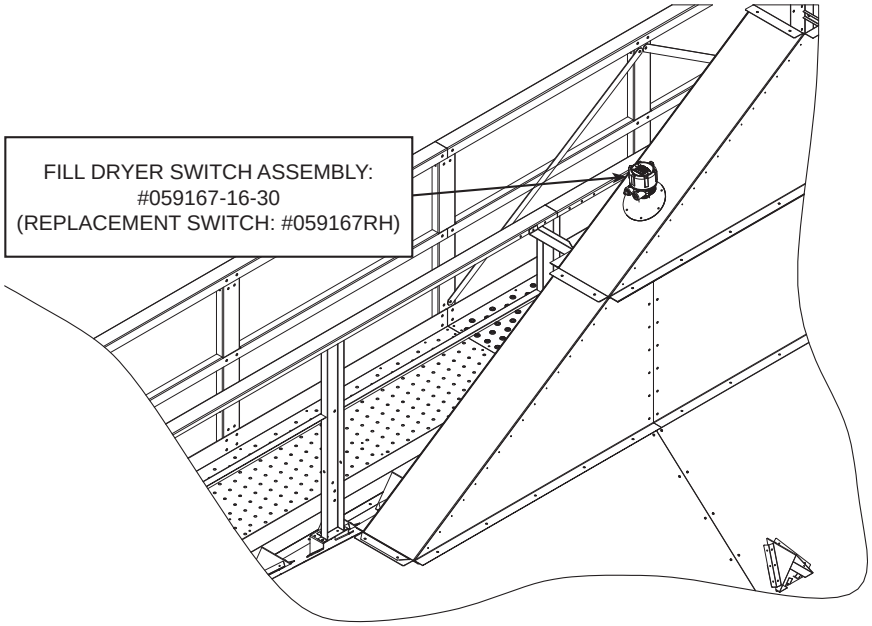
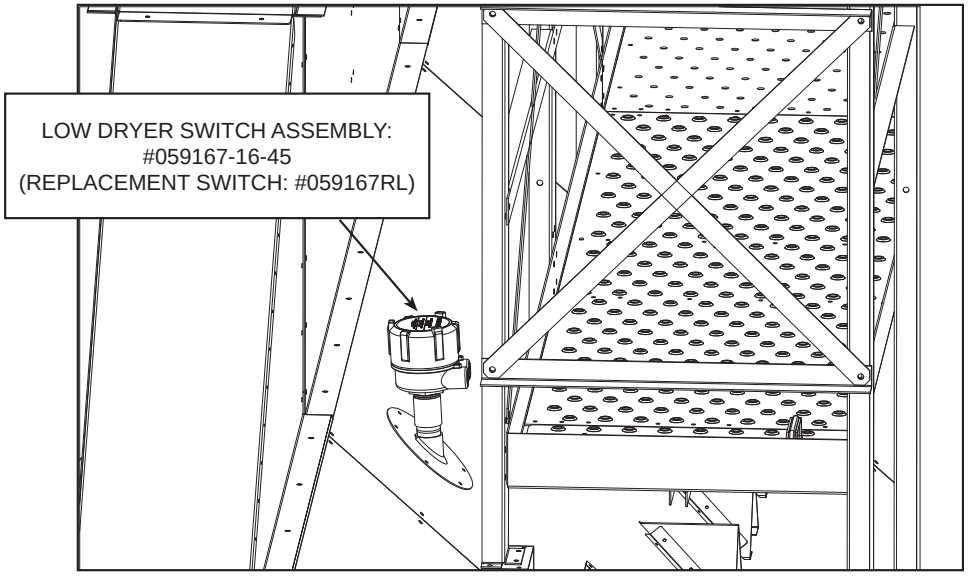


Figure 190. Low Dryer Switch Location – Gravity Fill and Level Auger Fill Systems



Roof with Gravity Fill System (For K Series Dryers)

Gravity fill system intake grain at the center. The intake auger system must match to this location.

Figure 191. Gravity Fill Switch and Cover Locations (For K Series Dryers)

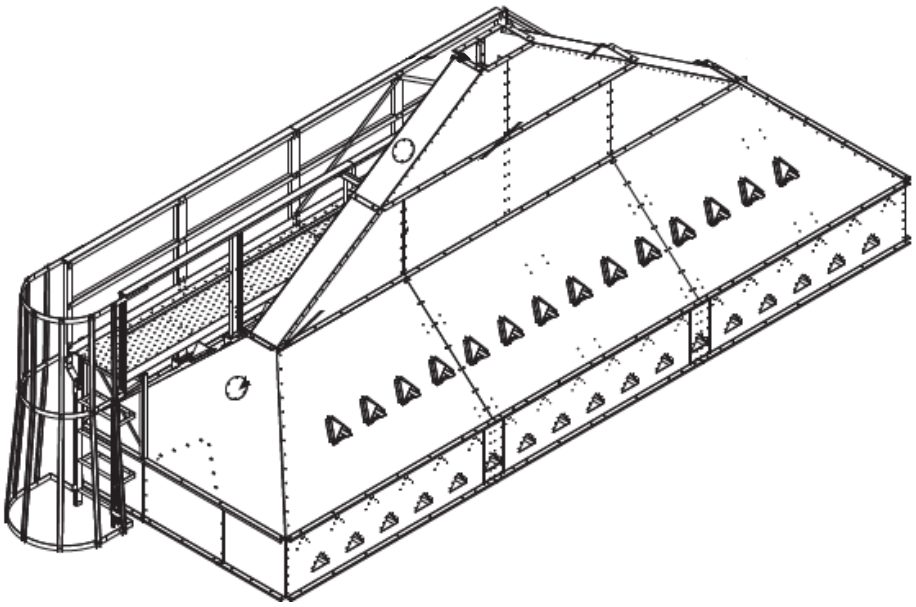


Figure 192. Hole Cover and Switch Flanges (For K Series Dryers)

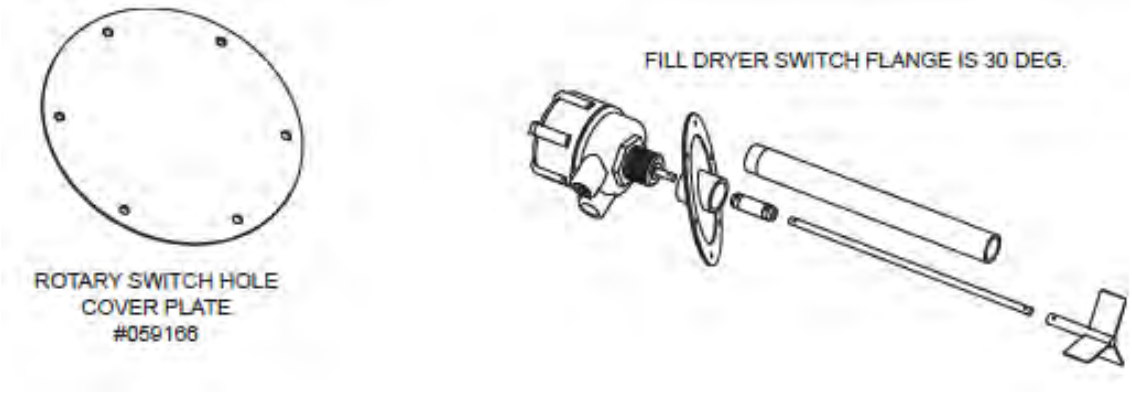
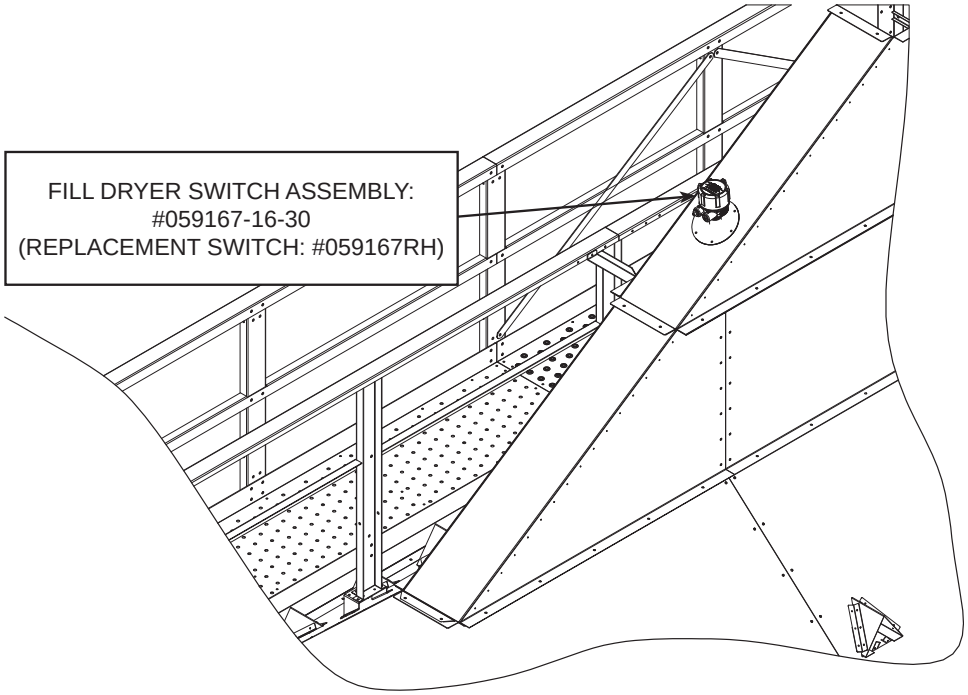


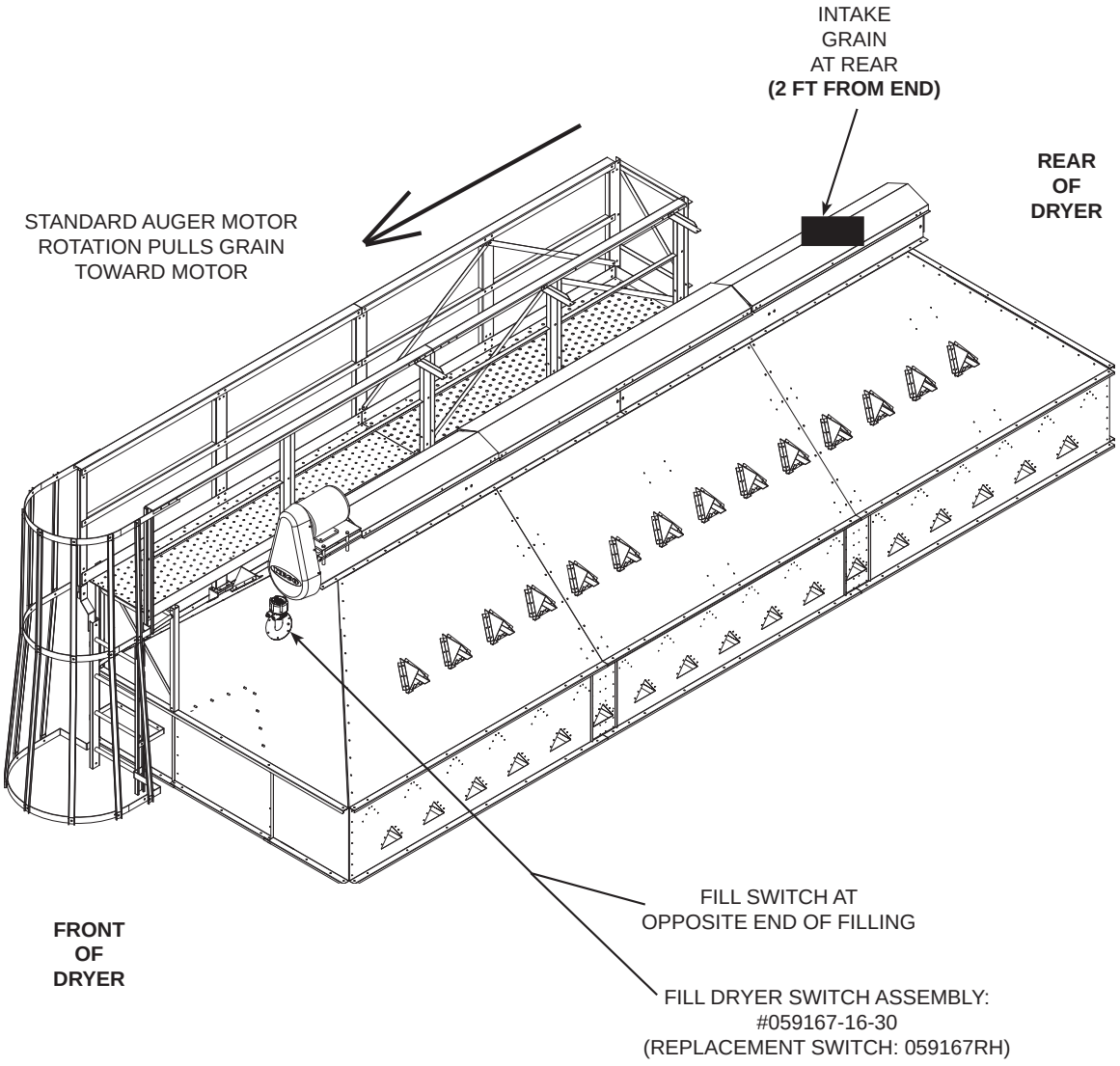
Figure 193. Fill Dryer Switch Location – Gravity Fill System (For K Series Dryers)



Level Auger Fill System Overview

- Grain intake position must be between 1' and 2' from the end of the dryer level auger.
- Factory configuration, per motor cable length and catwalk access, has the level auger motor located at the front end of the dryer closest to the control box.
- The Fill dryer switch and the Low dryer switch must be located at the OPPOSITE end of the intake grain entry for correct operation.
- Standard auger motor rotation brings the intake grain FORWARD from a grain entry position located at the rear end of the dryer. Reversed auger rotation results in the opposite.

Figure 194. Level Auger Fill Switch Location



Connect Fill Switch and Low Switch

1. The upper-most dryer section burner box uses the Y-split cables, one cable end marked “Fill" and the other cable marked “Low". This cable will be in the dryer crate.
2. Cable length supplied is sufficient to reach switch locations on all dryer sizes.
3. Route the cable above the transition and along the toe board of the catwalk using sticky tabs to the middle of the dryer.
4. Connect the cable marked “Low" to the low dryer switch.
5. Connect the cable marked “Fill" to the fill dryer switch.

Figure 195. Gravity Fill Cable Route*

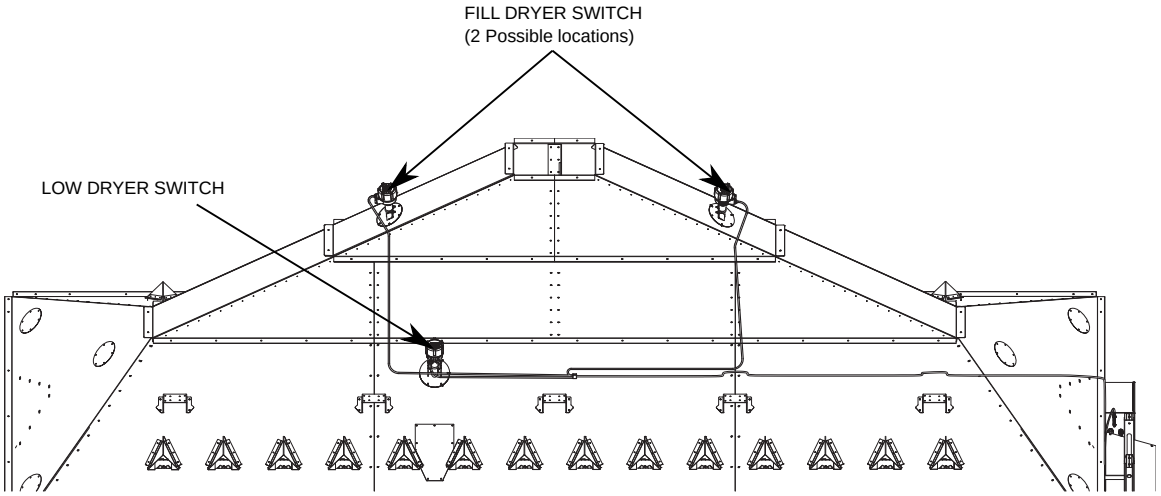
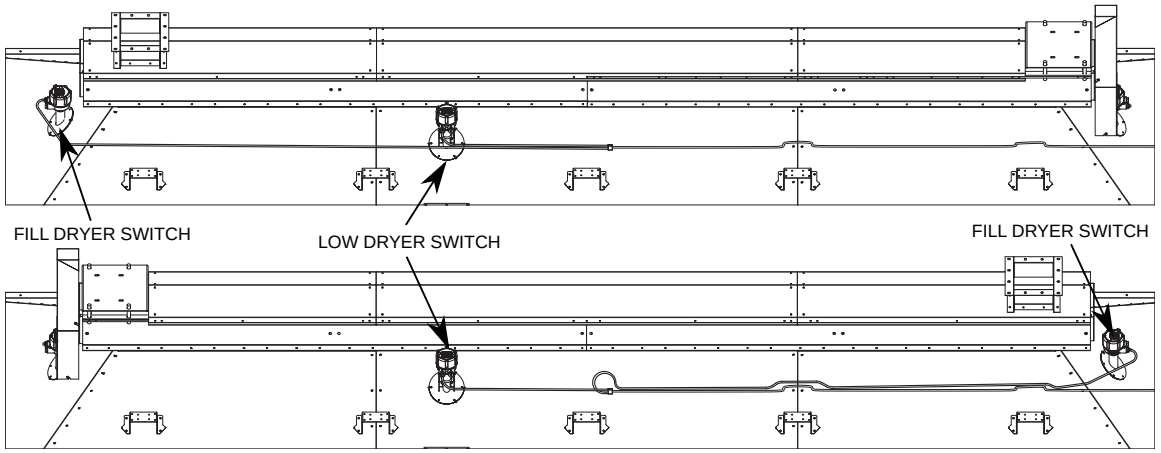


Figure 196. Level Auger Cable Route*



* The illustrations show cable routes for several possible switch locations.

4.14.7 Install Moisture/Temperature Sensors

Moisture/Temperature Sensor Overview

- The combination moisture/temperature sensing unit (059250W) has a moisture sensing “fin” and a temperature sensing probe directly below it. The sensor provides 0 to 10 VDC signals for both temperature and moisture, which the embedded DryerMaster converts to grain moisture and temperature readings.
- One sensor is located at the top of the dryer for reading INLET grain moisture and temperature.
- One sensor is located at the dryer grain discharge chute for reading OUTLET grain moisture and temperature.

Figure 197. Moisture Sensor

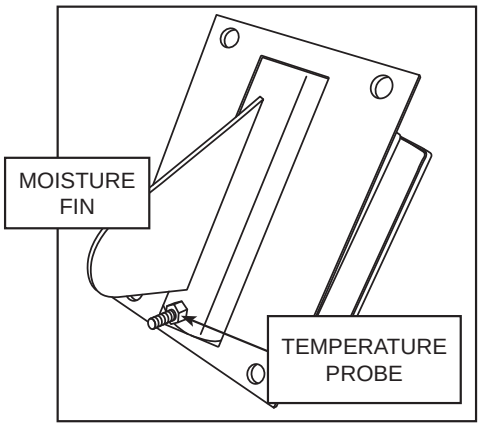
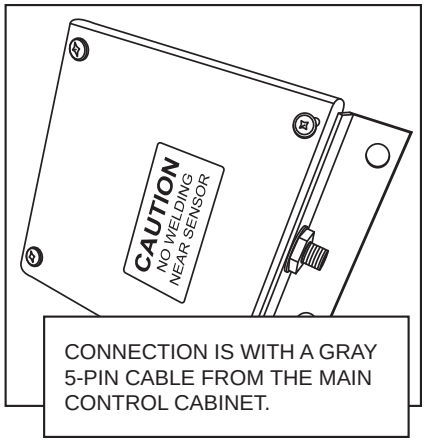


Figure 198. DryerMaster Module



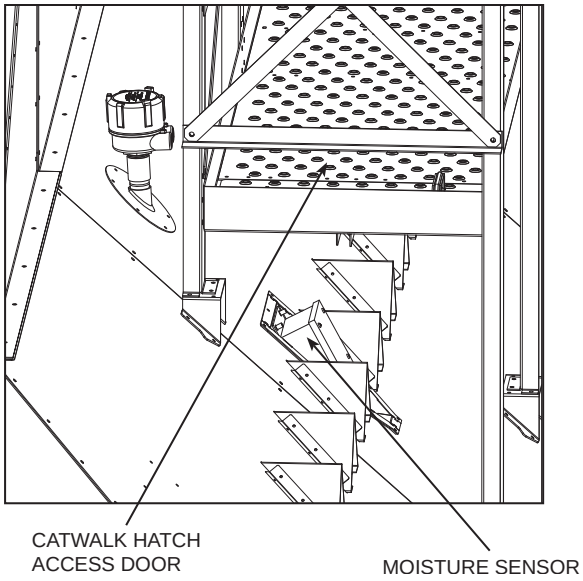
Mount Inlet Moisture/Temperature Sensors

1. Mount the inlet moisture sensor in the housing.
2. Connect the cable marked “Inlet Moisture”.

Note

Roof with Gravity Fill AND Level Auger Fill systems locate the inlet sensor on the catwalk side of the roof. (See the hatch-style door at the end of the catwalk for access.)

Figure 199. Inlet Sensor Location



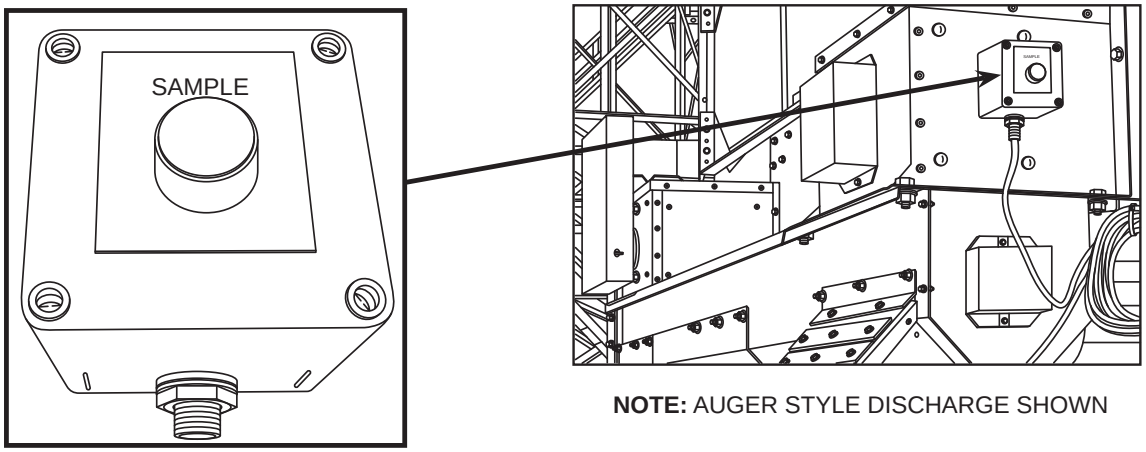
Mount Outlet Moisture/Temperature Sensors

1. Mount the sensor in the housing.
2. Connect the cable marked “Outlet Moisture”.
3. Mount the sample button.
4. Connect with the cable marked “Sample Button”.

Note

The outlet sensor/sample housing may be left-hand, center, or right-hand mounted onto the rear cross auger system.

Figure 200. Outlet Sensor and Sample Button Locations



4.14.8 Install the Discharge Chute Cables

1. The gearmotor on the discharge chute comes pre-wired to a small capacitor box. Mount the box in a convenient location, ideally under the dryer or under the cross auger/drag.
2. Connect the yellow “Sensor Motor” cable from the control panel to the capacitor box.
3. Dryers with auger unloads use a proximity switch (059118) to detect a plugged discharge, and dryers with drag unloads use a diaphragm switch (059245) for this purpose. Install the appropriate switch as shown, and connect the yellow “Plug Switch” cable from the control panel.

Figure 201. Plug Switch Auger

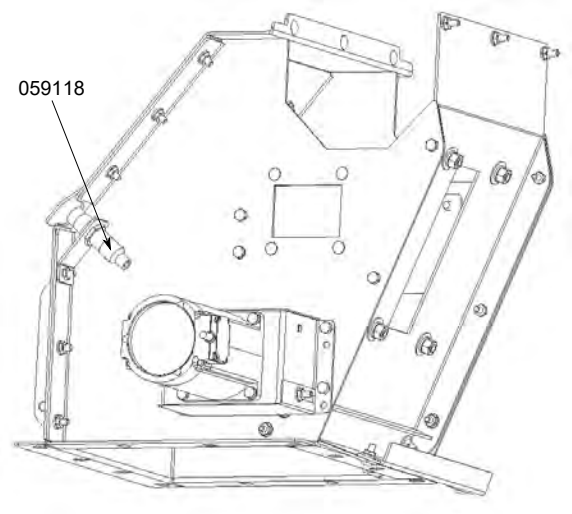
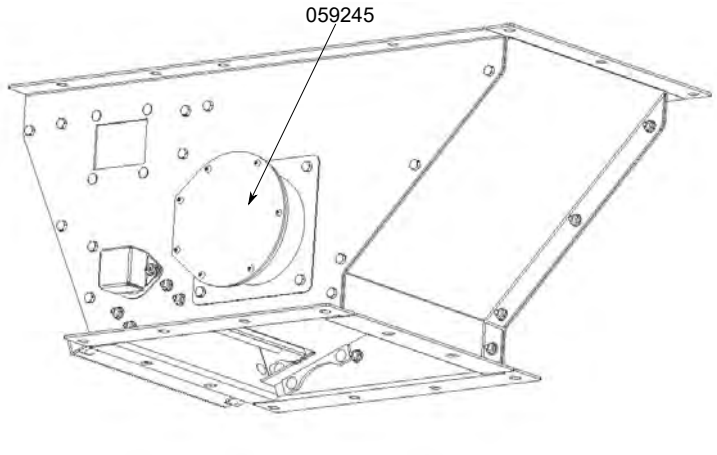


Figure 202. Plug Switch Drag



4.14.9 Install Wet Bin Empty and Dry Bin Full Switches (Optional)

Note

These OPTIONAL switches are provided and installed by the customer.

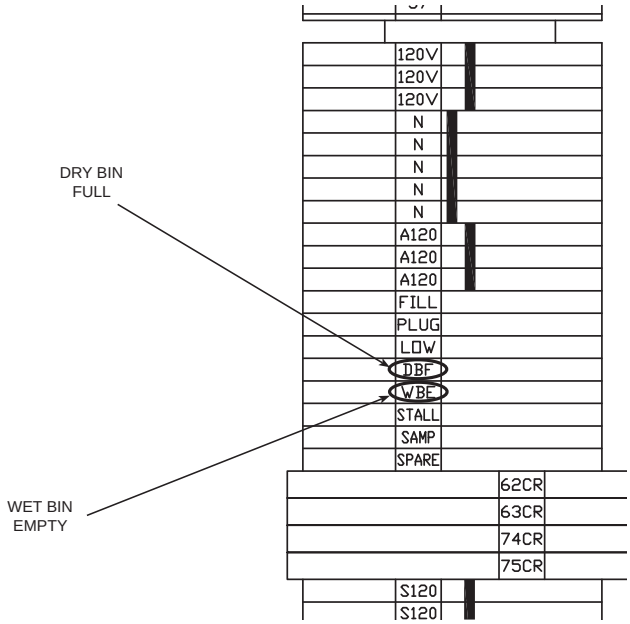
1. Install the wet bin empty switch near the bottom of the wet holding bin.

   Note

   The switch, when activated, only shuts off the filling equipment associated with the switch. The dryer will continue to dry grain until the dryer goes into a Low Dryer alarm status.

2. Place the dry bin full switch near the top of the dry holding bin.
3. Once the switches are in position, route the wires to the main control box terminal strip.
4. Connect the switches as shown in the following diagram:

Figure 203. Wet Bin Empty and Dry Bin Full Sensor Connections



4.14.10 HMI Wiring Connections

Important

The HMI must be connected to a customer-supplied 120 VAC, 400 to 600 VA uninterruptible power supply (UPS).

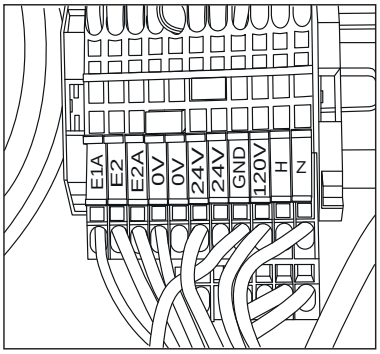
Electrical Wiring from Main Control to HMI

1. Using the labels provided, pull and connect the following wires from the main control terminals to the HMI terminals.

   Note

   For K Series dryers, refer to the schematic in the main control panel for HMI connections.

Figure 204. Terminals Inside HMI Enclosure



Wire Label	Wire Color
E1A	Blue
E2	Blue
E2A	Blue
24V	Blue
0V	White

Ethernet Cable from Main Control to HMI

1. Pull Cat 6 shielded Ethernet cable from the main control to the HMI. The maximum distance should be less than 300 feet.
2. Terminate each end of the Ethernet cable (if not already terminated).
3. Plug one end into the ethernet switch in the main control panel.
4. Plug the other end into the Ethernet switch inside the HMI enclosure.

Figure 205. Ethernet Cable Connection in Main Control Panel

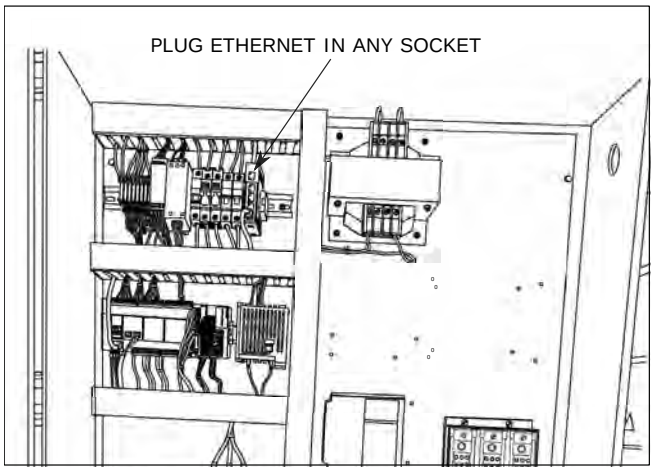
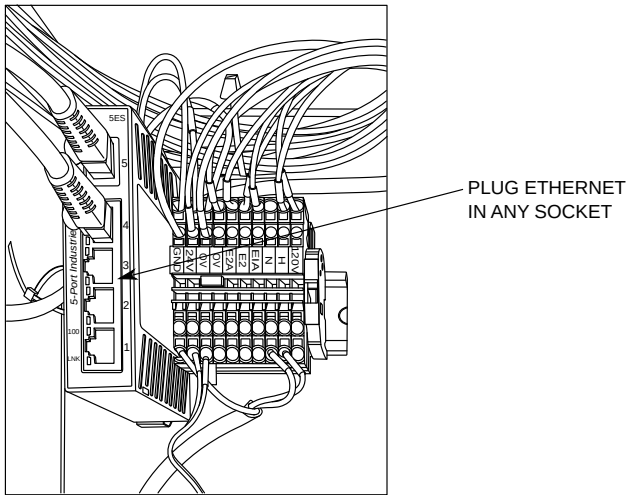


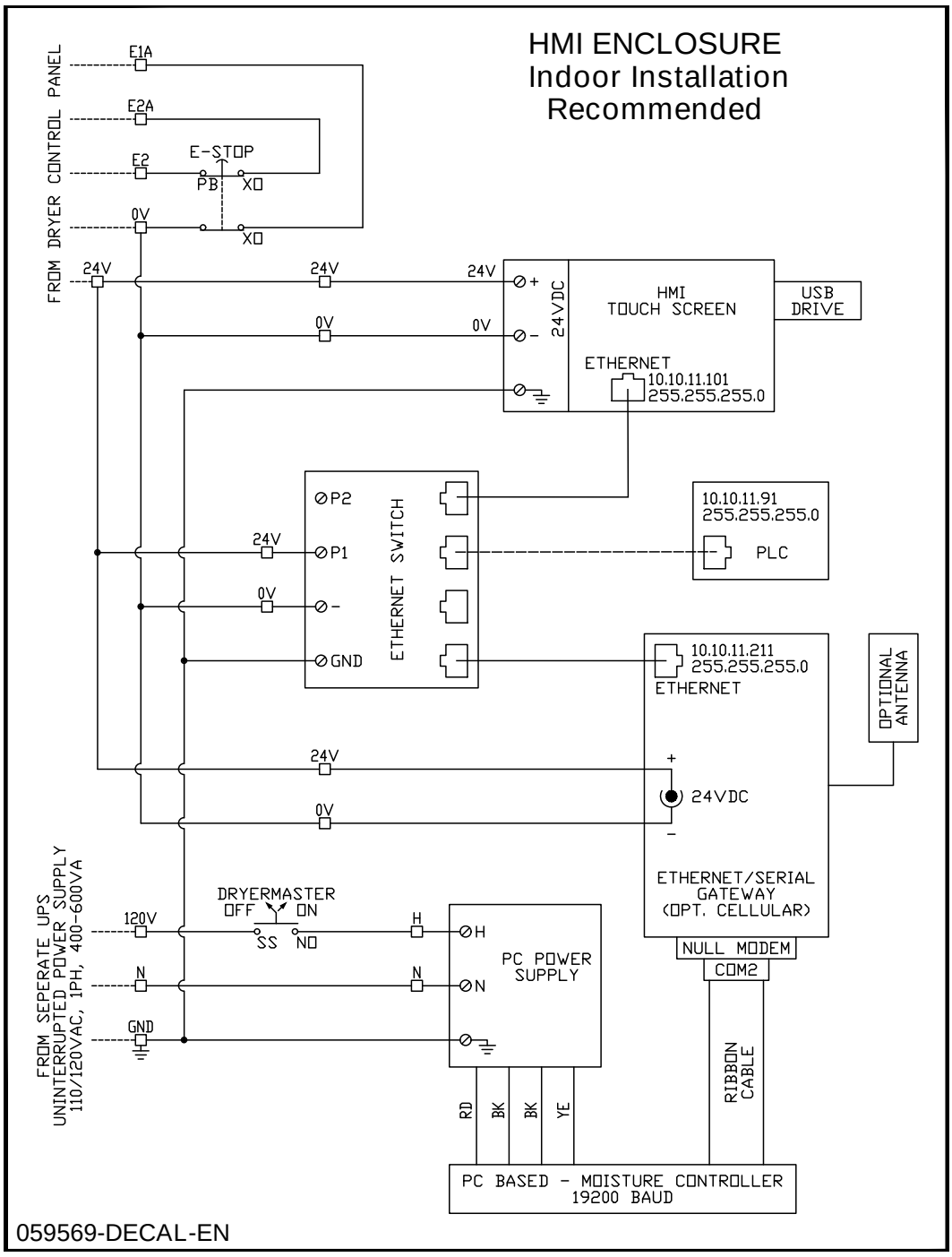
Figure 206. Ethernet Cable Connection in HMI Cabinet



HMI Enclosure Wiring

The following diagram shows electrical and Ethernet wiring entering the HMI enclosure (dashed lines).

Figure 207. HMI Wiring Diagram (D Series)



4.14.11 Final Fuel Supply Hookup

⚠ WARNING Hire a professional to plan, set up and connect your chosen fuel supply. This includes either liquid propane or natural gas.

⚠ WARNING After the plumbing is connected, check all connections and pipes for leaks. Because pipe connections can loosen due to vibration during shipping, it may be necessary to reseal the pipes.

Important

Either type of gas supply MUST include a manual emergency shut-off valve located in an appropriate location that allows access to this valve to shut off the fuel to the dryer in case of a fire or explosion at the dryer.

Note

Before making any threaded connections in the field, first ensure that the threads are free of debris. To provide a good seal and to prevent thread galling, utilize both pipe tape and a liquid sealant at the joints. Ensure that both the tape and liquid sealant are compatible with stainless steel and the dryer fuel type.

Plumbing Bleeds and Vents

Bleeds and vents that require venting shall be vented away from all ignition sources. Follow instruction included in the vent pipe box of parts.

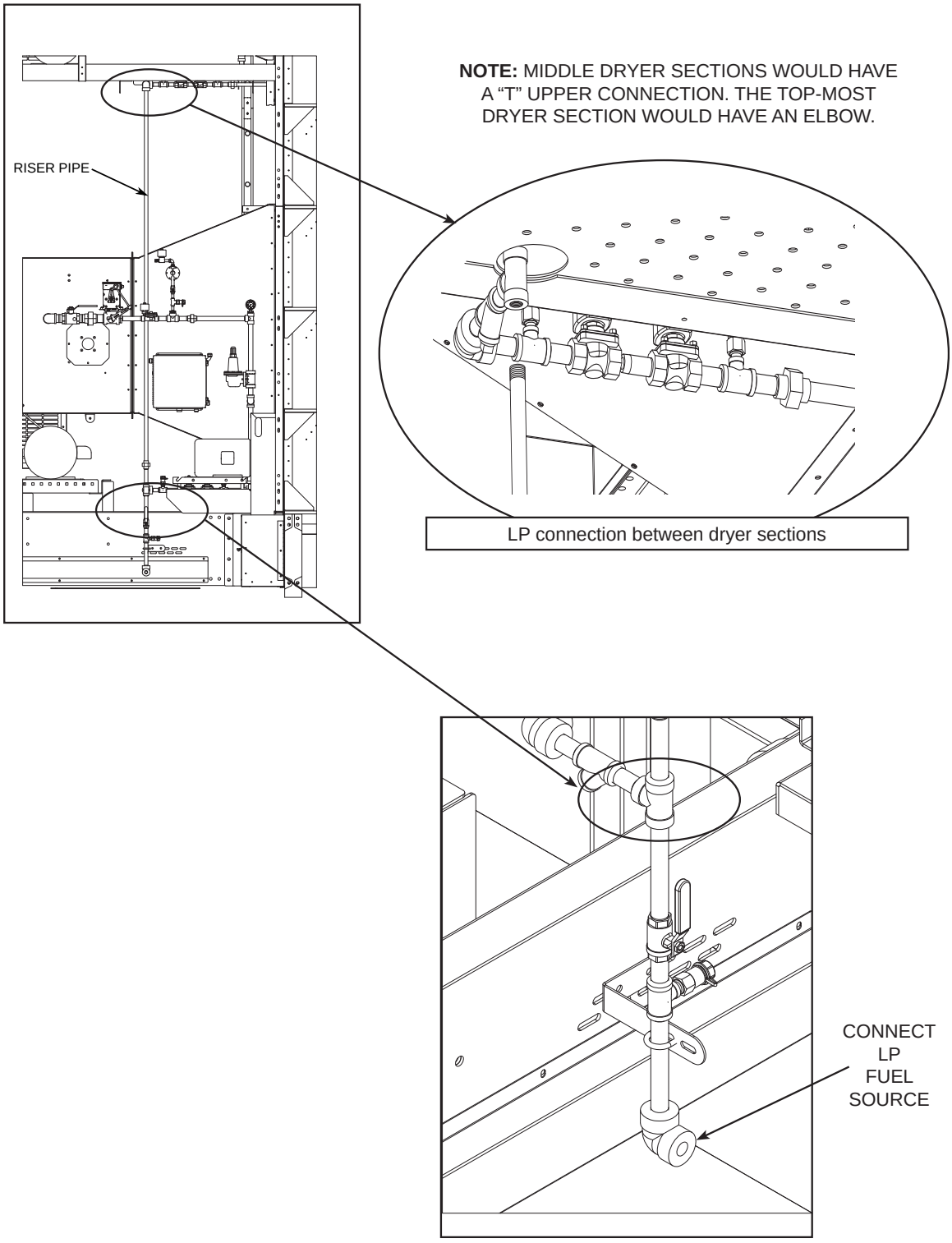
Liquid Propane (LP)

Liquid propane fuel trains are largely assembled and installed at the factory, however, there are a few exceptions described below.

Connect Riser Pipes and Fuel Source (All Dryers)

1. For multi-burner dryers, connect the fuel trains of each section with the provided riser pipes, as shown. ½" pipes are used for 16' and 24' dryers, and ¾" pipes are used for 32' dryers.
2. Connect the LP fuel source to the elbow on the bottom section inlet. A ½" elbow is used for 16' and 24' dryers, and a ¾" elbow is used for 32' dryers.

Figure 208. Connect LP Fuel Source

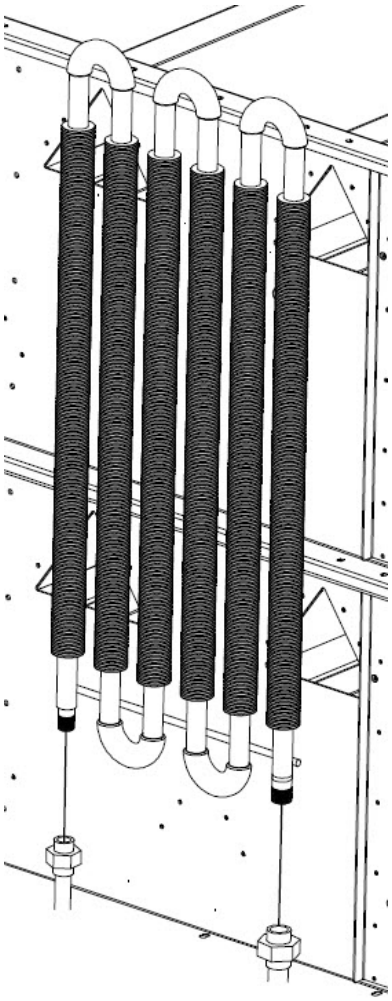


Install Vaporizer (Select Models Only)

Due to space constraints, certain dryer sections are shipped with the vaporizer uninstalled. In these cases, the vaporizer must be installed in the field after the sections have been stacked.

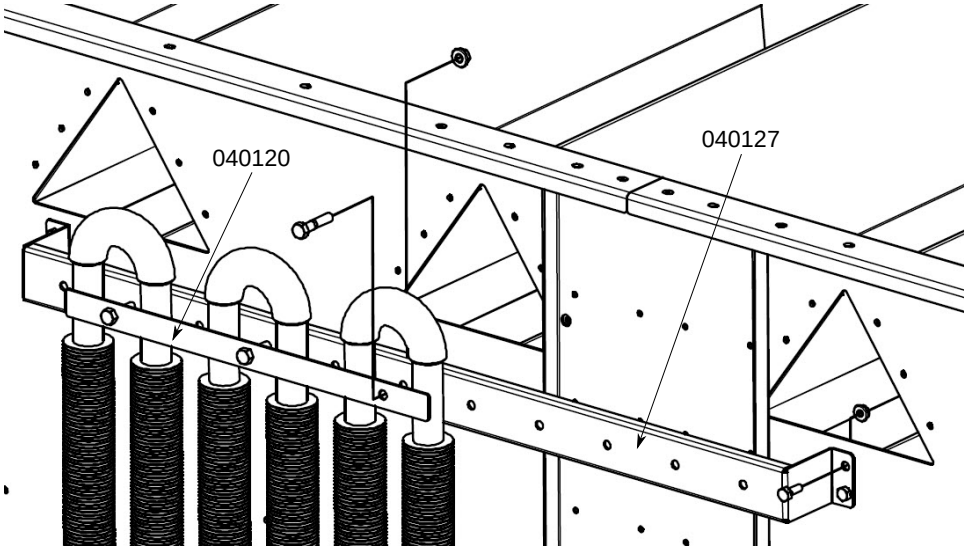
1. Use the provided unions to connect the vaporizer weldment to the vertical pipes protruding through the floor. Note that one union is ¾" and the other is ½", so the vaporizer most be oriented accordingly.

Figure 209. Vaporizer



2. If the 040127 vaporizer support bracket is not already in place, it will need to be mounted to the dryer body side behind the vaporizer. Position the bracket where the mounting flanges are free from obstructions, and where you will have access to install hardware through duct openings. Also ensure that there is clearance for the 5/16" bolts that will be used to connect the 040127 bracket and the 040120 strap. Once properly positioned, drill through the mounting holes of the 040127 bracket into the body side. Secure in place with ¼" x ¾" bolts and whiznuts. Sandwich the vaporizer between the 040120 strap and the 040127 bracket, and secure with 5/16" x 1-1/2" bolts and whiznuts

Figure 210. Vaporizer



Install Vent Pipe Assemblies (CSA Models Only)

1. Vent pipe assemblies are shipped partially broken down for shipping purposes. Reassemble as shown.
2. Connect the vent pipe assemblies to the fuel inlet assemblies on the dryer as shown and secure to the 041015 brackets with the provided ¼" U-bolts and whiznuts. Adjust the level of the brackets as needed to ensure that the vent pipes are level or sloped slightly in a direction that will allow water to drain.

Figure 211. Vent Pipe - Bottom Section

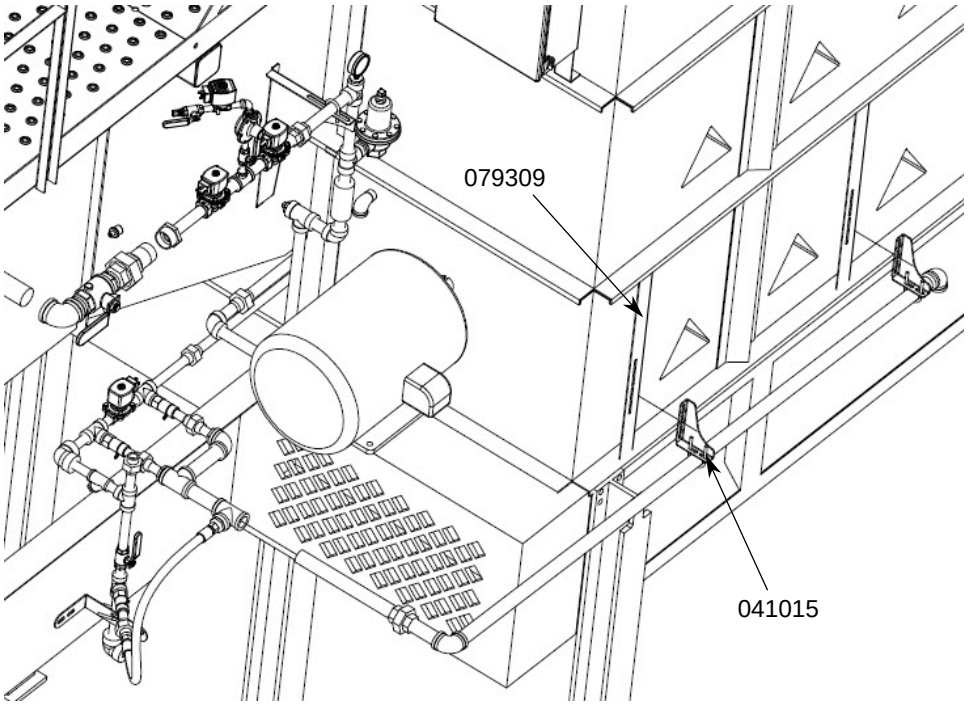
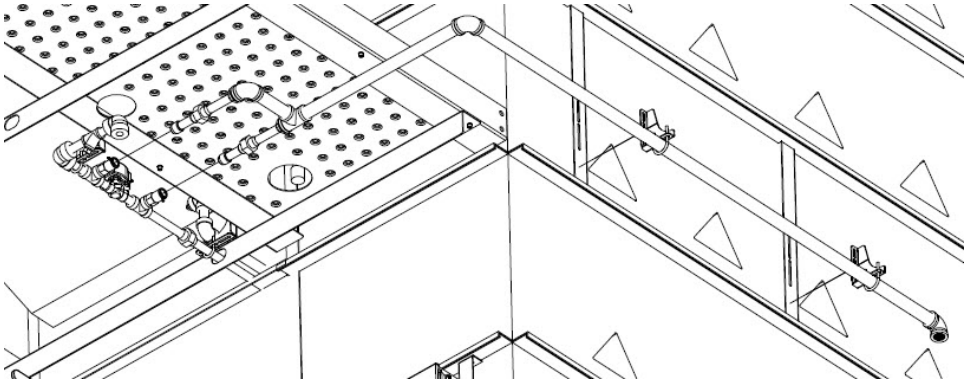


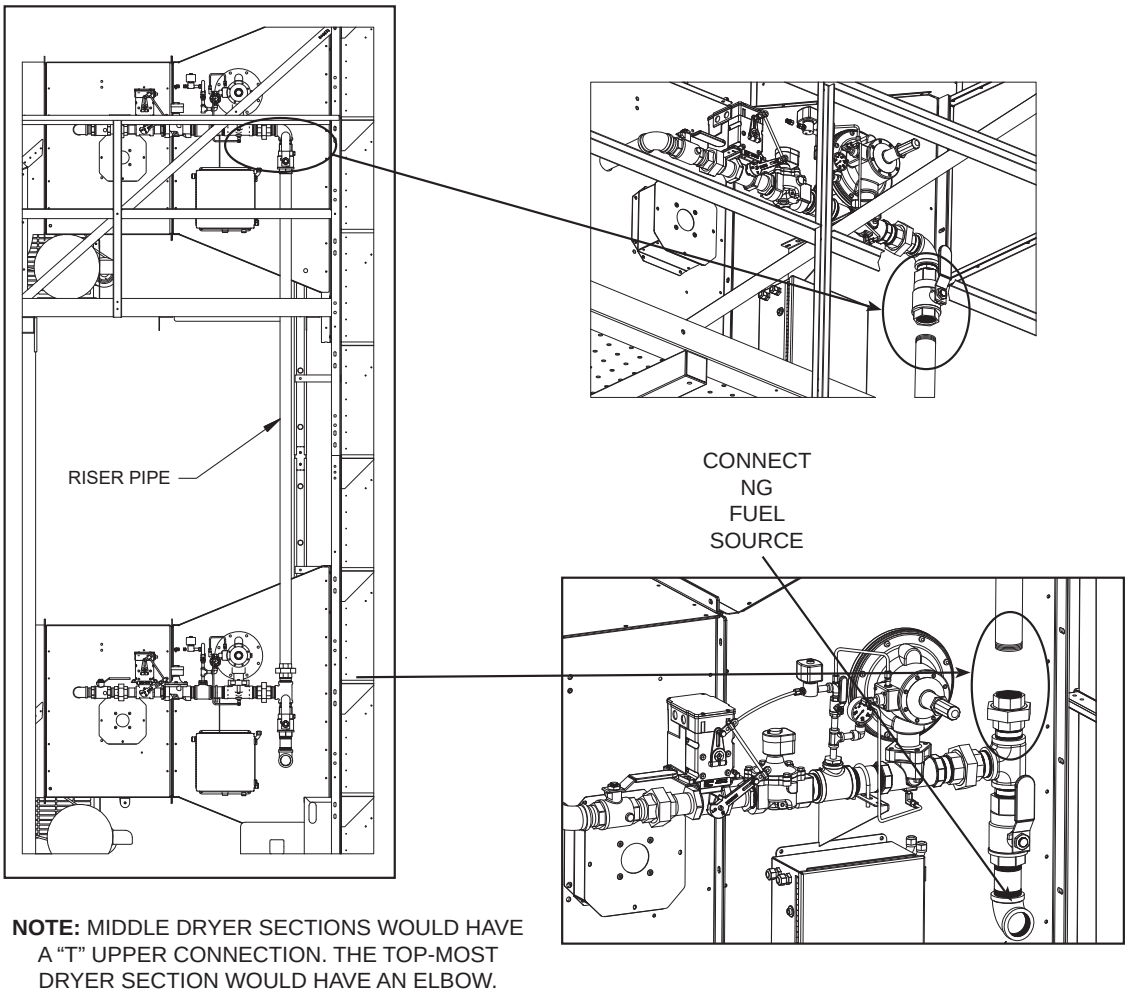
Figure 212. Vent Pipe - Upper Section



Natural Gas

1. Connect between dryer sections using the riser pipe provided with the dryer section.
2. Connect the NG fuel source to the inlet elbow of the lowest dryer section.

Figure 213. NG Connection Between Dryer Sections and Fuel Source Connection



NOTE: MIDDLE DRYER SECTIONS WOULD HAVE A "T" UPPER CONNECTION. THE TOP-MOST DRYER SECTION WOULD HAVE AN ELBOW.

Dryer Fuel System Gas Leak Check

Important

The dryer fuel train shall be inspected for leaks to verify the gas tightness of the dryer components and piping under normal operating conditions. After installation and annually thereafter use a solution of soap and water to check fittings and pipe for leaks.

The dryer and its individual shutoff valve must be disconnected from the gas supply piping system during any pressure testing of that system at test pressures in excess of ½ psi (3.5 kPa). The dryer must be isolated from the gas supply piping system by closing its individual manual shutoff valve during any pressure testing of the gas supply piping system at test pressures to or less than ½ psi (3.5 kPa).

The gas tightness of the solenoids can be checked by adding test gauges to the test ports of the main solenoid valves. While the dryer is running turn off the manual shutoff valve before each burner and turn off the fuel supply manual shutoff at the inlet fuel supply to the dryer. Monitor the pressure of upstream and downstream pressure gauge. If the pressure of any of the gauges drops to zero there could be a leak in the system. Use a solution of soap and water to find the source of the leak.

4.14.12 External Transport(s)

Overview

The following diagrams show typical transport setups, which are detailed with sample input data in the *Commander Control Owner's and Operator's Manual* .

For specific wiring information related to external transports and NEMA starters, see the Section 6. – Appendix on page 202.

NECO provides the ability to control two transport devices to FILL the dryer and two transport devices to EMPTY the dryer within the Commander control system. All motor starters, starter coils, and overload contacts required are customer-supplied.

These external transport systems can control incoming (wet) grain and outgoing (dry) grain so that the overall system works in conjunction with the dryer. (See *Commander Control Owner's and Operator's Manual* for specifics to enter Fill/Empty setup data.

External Transport Examples

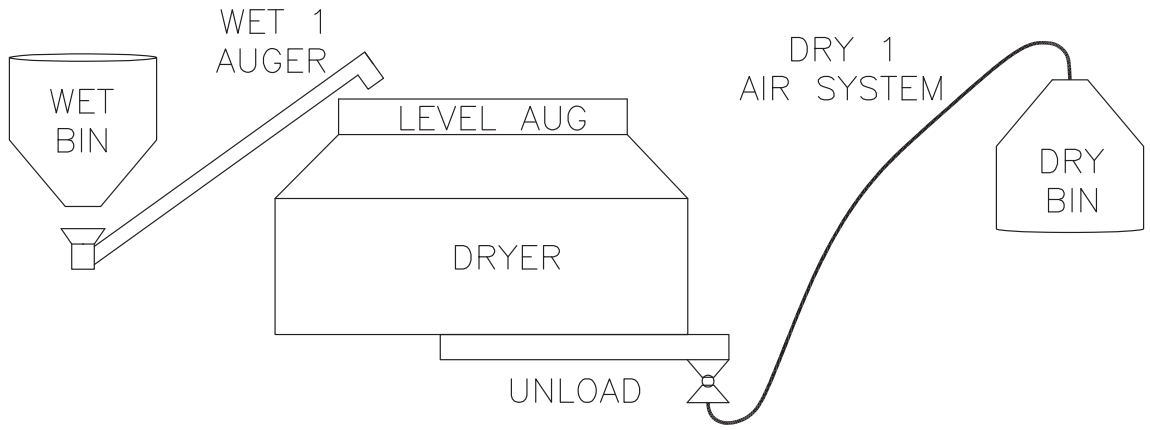
Example 1: Wet 1 Auger and Dry 1 Air System

The following diagram show one wet system and one dry system to be controlled and operated by the *Commander* system.

Note

Shown for example only. Individual configuration vary.

Figure 214. Wet 1 Auger and Dry 1 Air System



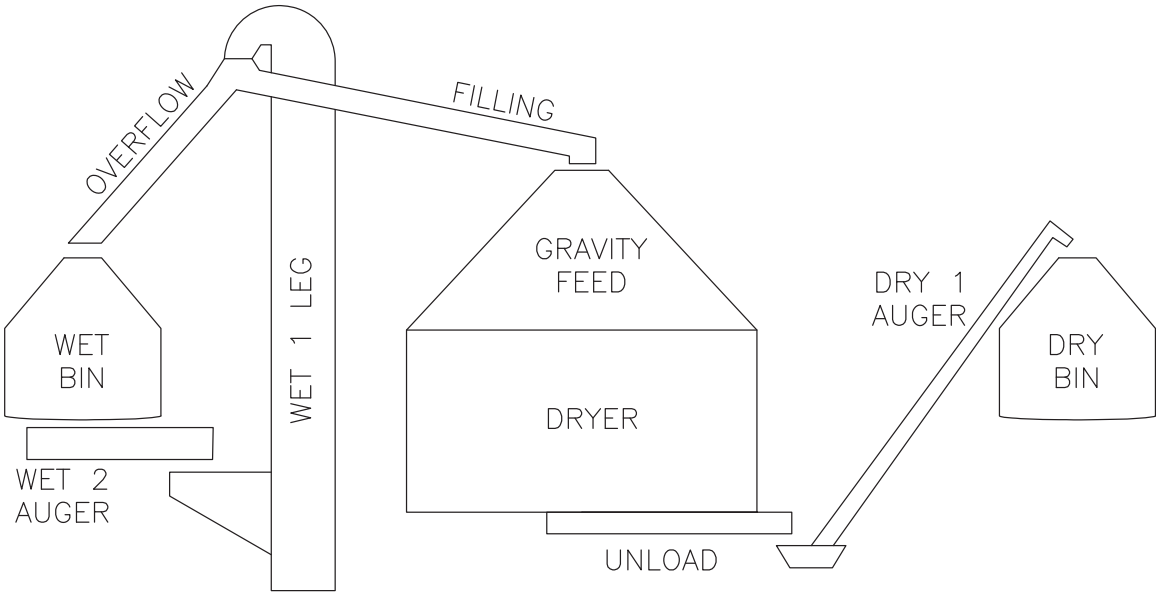
Example 2: Wet 1 and Wet 2 Augers and Dry 1 Auger

The following diagram show two wet systems and one dry system to be controlled and operated by the *Commander* system.

Note

Shown for example only. Individual configuration vary.

Figure 215. Wet 1 and Wet 2 Augers and Dry 1 Auger



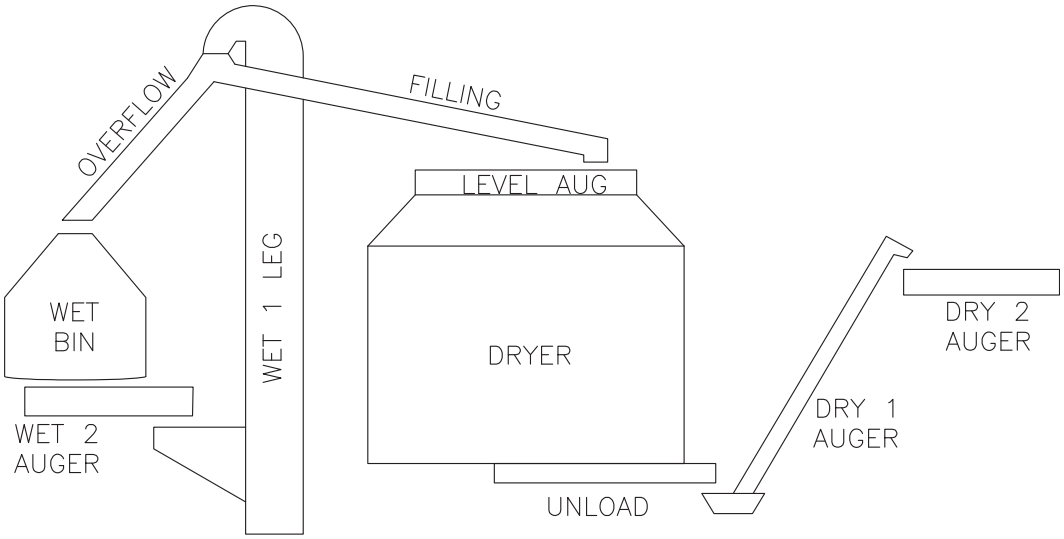
Example 3: Wet 1 and Wet 2 Augers and Dry 1 and Dry 2 Augers

The following diagram show two wet systems and two dry systems to be controlled and operated by the *Commander* system.

Note

Shown for example only. Individual configuration vary.

Figure 216. Wet 1 and Wet 2 Augers and Dry 1 and Dry 2 Augers



4.14.13 Commander Control Setup

Note

The setup of the *Commander* control system is detail in the *Commander Control Owner's and Operator's Manual.*

The dryer configuration information is input at the factory prior to system testing. This type of information includes:

- Language
- The dryer system's measurement units are either set to Imperial or metric. Imperial units output temperature in Fahrenheight and volume in bushels. Metric units output temperature in Celsius and volume in cubic meters.
- The type of fuel supplied to the system.
- The dryer system's number of blowers and burners.
- Output gear motor RPM.
- The number of tiers in each blower/burner section.

After installation, the Fill/Empty setup and Timers setup are completed by the customer. This type of information includes:

- If optional sensors are present (e.g. wet bin empty or dry bin full)
- Presence of additional auxiliary equipment (e.g. unload auger system, etc.)
- Maximum metering roll speed
- Various timers (e.g. cooling time, metering roll start time, etc.)

5. Specifications

5.1. Standard Model Specifications

Refer to the following table for specifications on standard NECO dryers. They are listed by model number as shown on the rating plate located on the front of the main control.

If the model number of your particular dryer is not shown below, contact your dealer.

Table 17. Standard Model Specifications

Model Number	Number of Tiers	Holding Capacity		Number of Burners and Blowers	TOTAL Blower Output (Max)		TOTAL Burner Output (Max)	
		Bushels (See Notes)	Metric Tonnes		cubic ft/min	cubic m/min	MMBTU /hr	kWH
D1660	4	579	15	1	21,500	609	4.9	1436
D1670	5	674	17	1	23,500	665	6.1	1788
D1680	6	770	19	1	27,500	778	5.8	1702
D1690	7	866	22	1	32,000	905	6.3	1846
D16106	8	962	24	2	36,600	1,035	9.8	2872
D16120	10	1,155	29	2	47,000	1,330	11.6	3404
D16140	12	1,347	34	2	55,000	1,556	11.2	3272
D16160	14	1,539	39	3	65,300	1,847	16.5	4840
D16180	16	1,731	44	3	78,500	2,221	17.2	5041
D24108	6	1,155	29	2	41,200	1,165	9.8	2872
D24150	8	1,443	36	2	55,000	1,556	11.6	3404
D24180	10	1,732	44	2	62,000	1,754	16.0	4689
D24210	12	2,020	51	3	82,500	2,334	17.4	5106
D24240	14	2,309	58	3	89,500	2,532	21.8	6391
D24260	16	2,597	66	4	110,000	3,113	23.2	6809
D24330	20	3,174	80	5	137,500	3,891	29.0	8511
D24380	24	3,750	95	6	165,000	4,669	34.8	10213
D32260	12	2,693	68	3	108,000	3,056	27	7,913
D32340	16	3,463	88	4	144,000	4,075	36	10,551
D32440	20	4,232	107	5	182,000	5,150	45	13,188
D32500	24	5,001	127	6	216,000	6,112	54	15,826

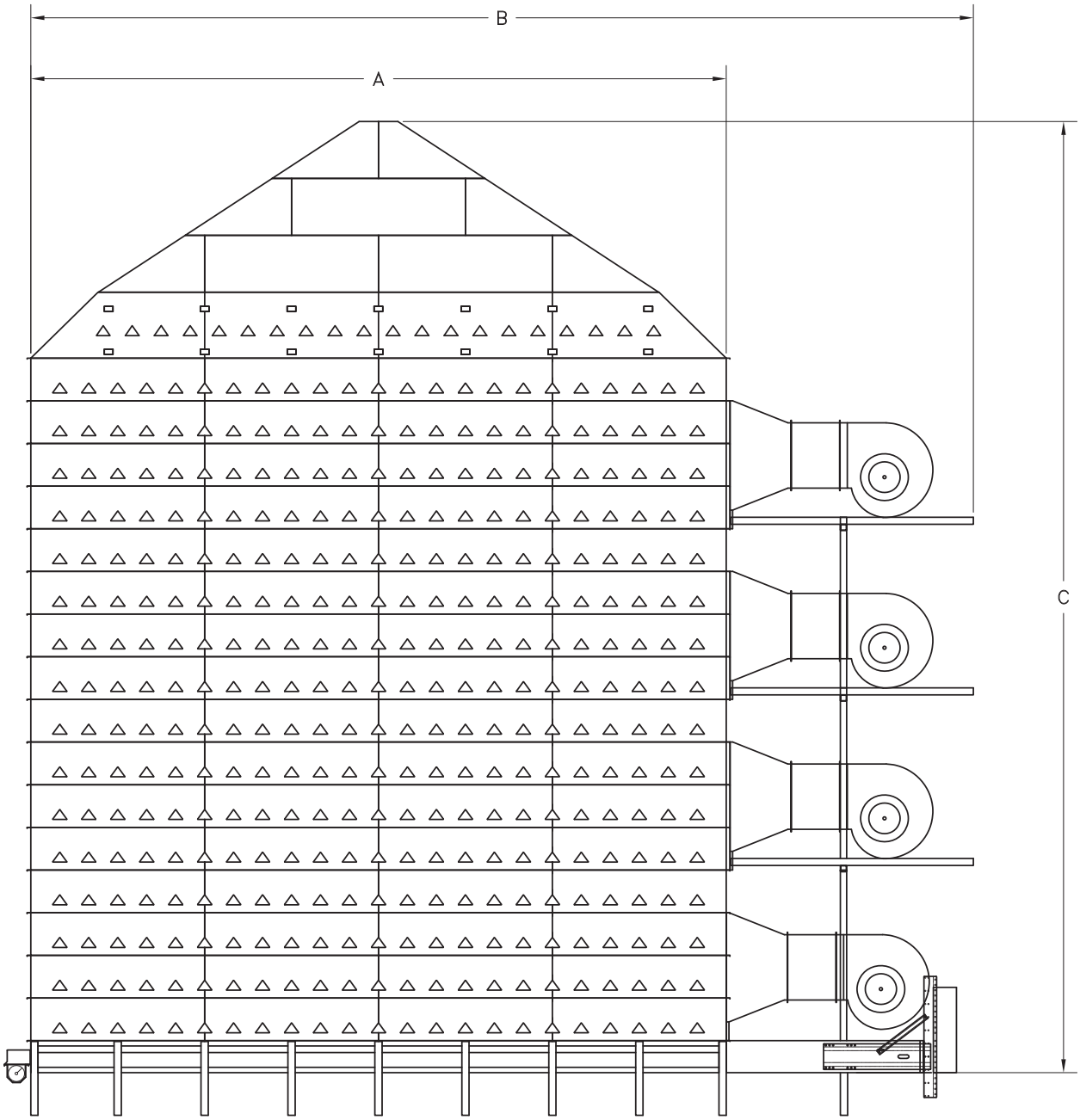
Note

1. Drying capacities represent NECO's best estimate of attainable wet bushel capacities based on a combination of actual field results and computer analysis.
2. Capacities will vary depending on outside temperature, humidity, initial grain temperature, crop maturity and variety, cleanliness of the grain, test weight, operating temperature, drying vs. cooling zones, etc.
3. Hot grain discharged from the dryer will dry an additional 1.5% – 2% when properly cooled.
4. Average burner output MMBTU/hr is based on 155° F temperature rise. Ambient of 55° F and dryer operating temperature of 210° F.
5. Holding capacity values represent corn at 15.5% moisture content (56 lb/bushel).

5.2. Wind Load

Refer to Section 5.2.1 – Wind Load Data on page 193 for dimensions for wind load calculations.

Figure 217. Wind Load Data Dimensions



5.2.1 Wind Load Data

Table 18. Wind Load Data

DRYER MODEL	"A" ft (m)	"B" ft (m)	"C" ft (m)
D1660	16 (4.9)	24 (7.3)	15.0 (4.6)
D1670	16 (4.9)	24 (7.3)	17.0 (5.2)
D1680	16 (4.9)	24 (7.3)	19.0 (5.8)
D1690	16 (4.9)	24 (7.3)	21.0 (6.4)
D16106	16 (4.9)	24 (7.3)	23.0 (7.0)
D16120	16 (4.9)	24 (7.3)	27.0 (8.2)
D16140	16 (4.9)	24 (7.3)	31.0 (9.4)
D16160	16 (4.9)	24 (7.3)	35.0 (10.7)
D24108	24 (7.3)	32 (9.8)	21.7 (6.6)
D24150	24 (7.3)	32 (9.8)	25.7 (7.8)
D24180	24 (7.3)	32 (9.8)	29.7 (9.1)
D24210	24 (7.3)	32 (9.8)	33.7 (10.3)
D24240	24 (7.3)	32 (9.8)	37.7 (11.5)
D24260	24 (7.3)	32 (9.8)	41.7 (12.7)
D24330	24 (7.3)	32 (9.8)	49.7 (15.1)
D24380	24 (7.3)	32 (9.8)	57.7 (17.6)
D32260	32 (9.6)	40 (12.2)	36.4 (11.1)
D32340	32 (9.6)	40 (12.2)	44.4 (13.5)
D32440	32 (9.6)	40 (12.2)	52.4 (16.0)
D32500	32 (9.6)	40 (12.2)	60.4 (18.4)

5.3. Dryer Weight Data

The following information can be used to calculate the total dryer weight for purposes of transferring those numbers to the load points (anchor legs, etc.) shown in the following sections to determine proper concrete support footings for the dryer system.

Table 19. Dryer Weight Data

DRYER MODEL	NUMBER OF TIERS	DRYER EMPTY WEIGHT (lbs)	DRYER EMPTY WEIGHT (kg)	EMPTY VOLUME * (bushel)	FULL WEIGHT CORN @ 68 lbs/ bushel	EMPTY VOLUME ** (cubic meters)	FULL WEIGHT CORN (metric tonnes)
D1670	5	11941	5416	674	45,832	23.8	21
D1680	6	12831	5820	770	52,360	27.1	24
D1690	7	13970	6336	866	58,888	30.5	27
D16106	8	17054	7735	962	65,416	33.9	30
D16120	10	19329	8767	1155	78,540	40.7	36
D16140	12	21604	9799	1347	91,596	47.5	42
D16160	14	26405	11977	1539	104,652	54.2	47
D24108	6	20495	9296	1155	78,540	40.7	36
D24150	8	23402	10614	1443	98,124	50.8	45
D24180	10	26821	12165	1732	117,776	61.0	53
D24210	12	32187	14599	2020	137,360	71.2	62
D24240	14	36473	16543	2309	157,012	81.4	71
D24260	16	42709	19372	2597	176,596	91.5	80
D24330	20	53231	24145	3174	215,832	111.8	98
D24380	24	63753	28836	3750	255,000	132.1	116
D32260	12	41222	18697	2693	183,124	94.9	83
D32340	16	54810	24861	3463	235,484	122.0	107
D32440	20	68398	31024	4232	287,776	149.1	131
D32500	24	81986	37188	5001	340,068	176.2	154

* US measurement of dry bushels

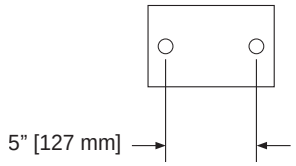
** The volume of cubic meters = (3 of dry bushels) x 0.0352

Note

- The following layouts show the dryer load points at the *centers* of standard

  NECO anchor legs and column support legs.
- A concrete pad (non-load supporting) under the dryer makes cleanup considerably easier. The recommended minimum size is shown as a reference for each layout size.

Figure 218. Anchor bolt layout for NECO leg kits



5.4. Utility Layout and Weight Load Points

Figure 219. Load Point (Anchor Legs) Layout for Dryer Models D1660

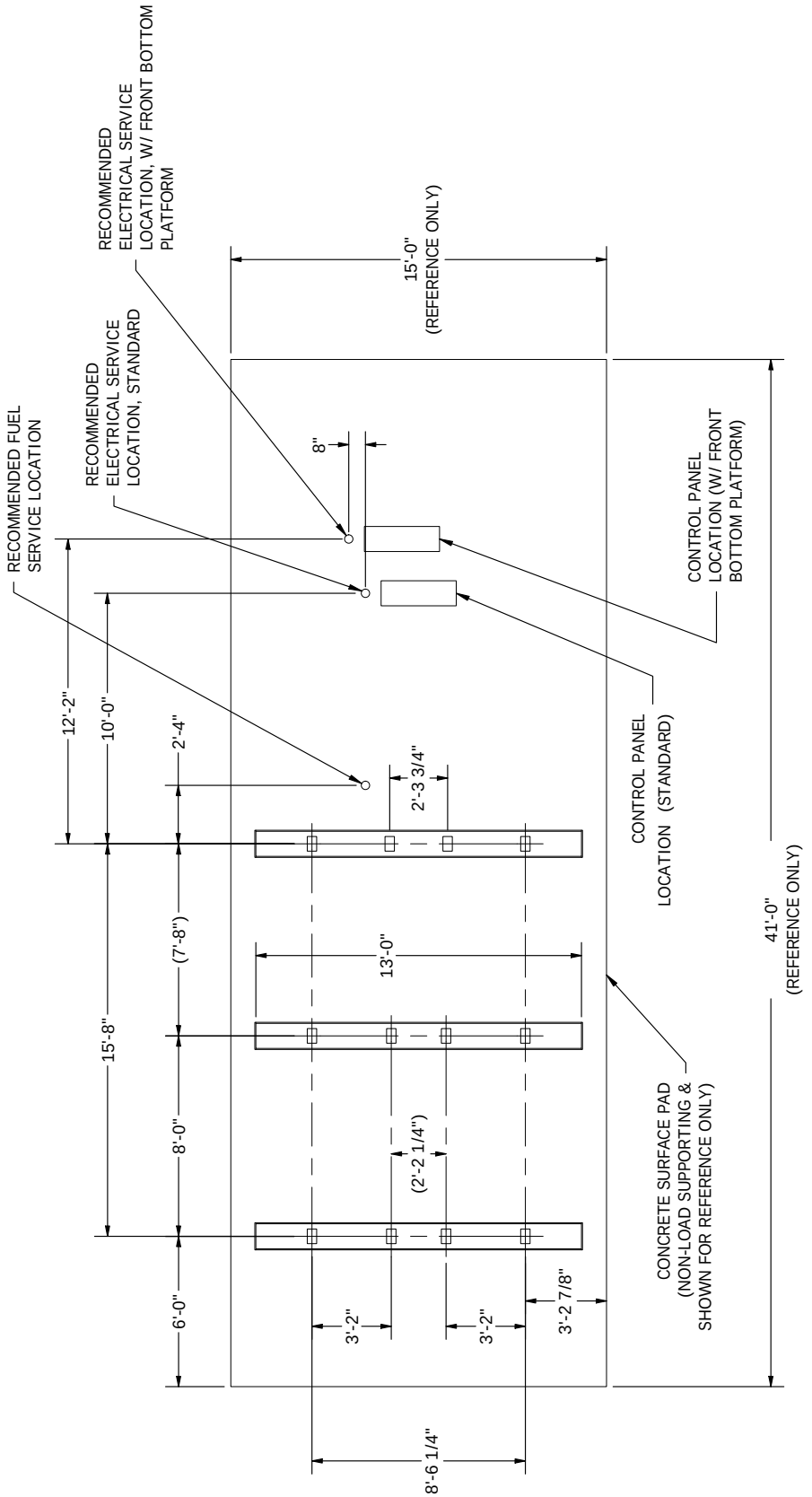


Figure 220. Load Point (Anchor Legs) Layout for Dryer Models D1670, D1680, and D1690

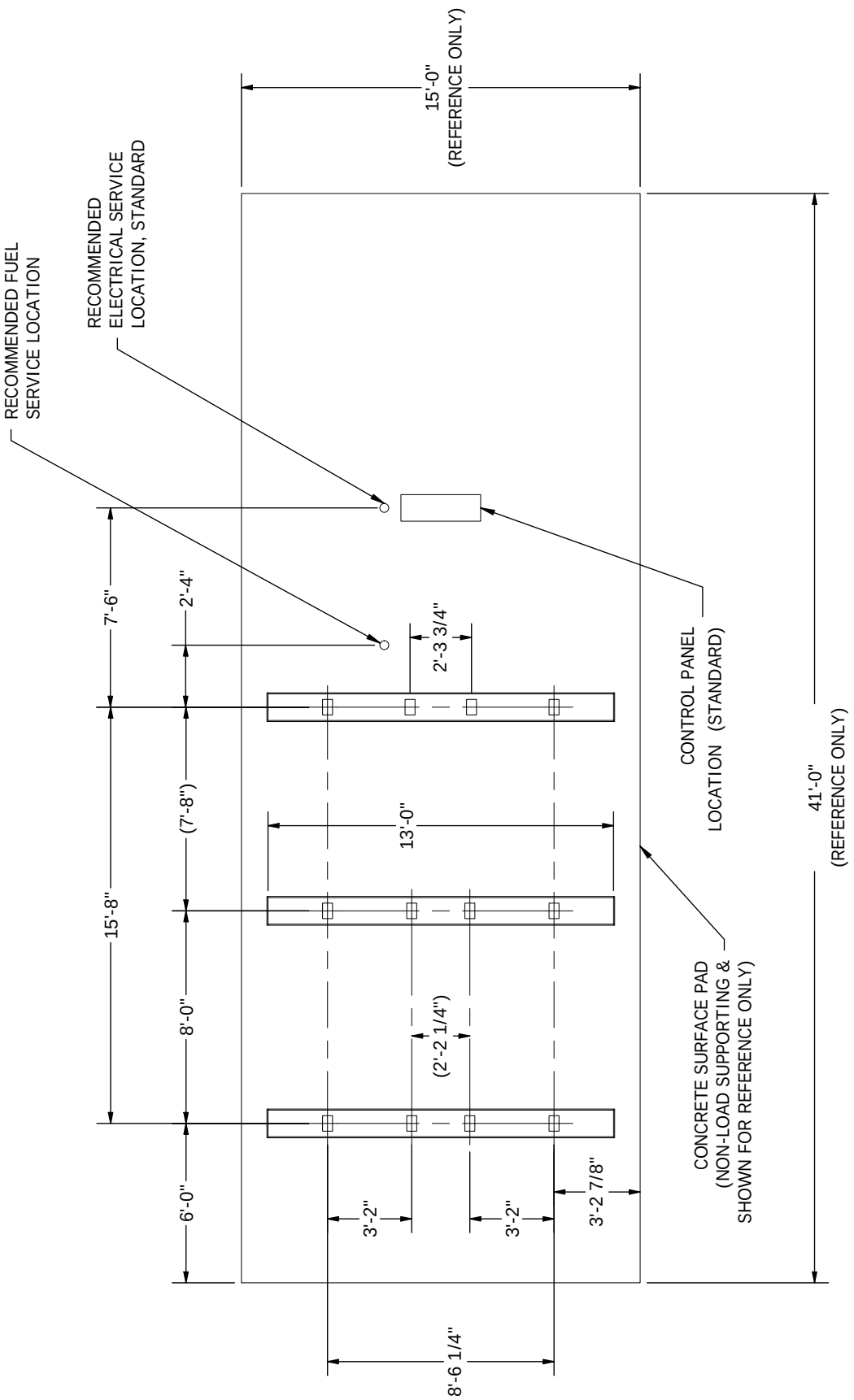


Figure 221. Load Point (Anchor Legs) Layout for Dryer Models D16106, D16120, and D16140

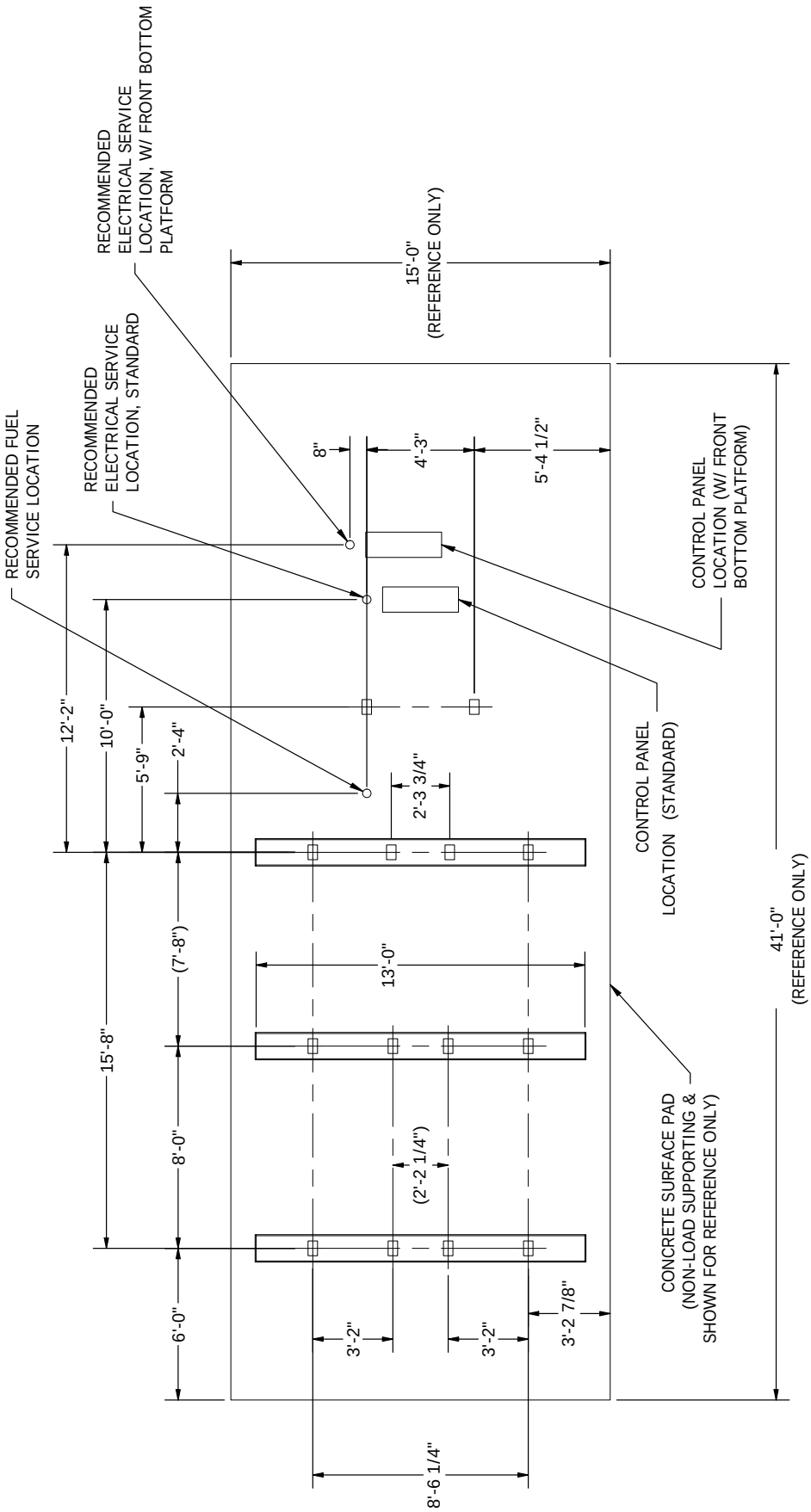


Figure 222. Load Point (Anchor Legs) Layout for Dryer Models D16160

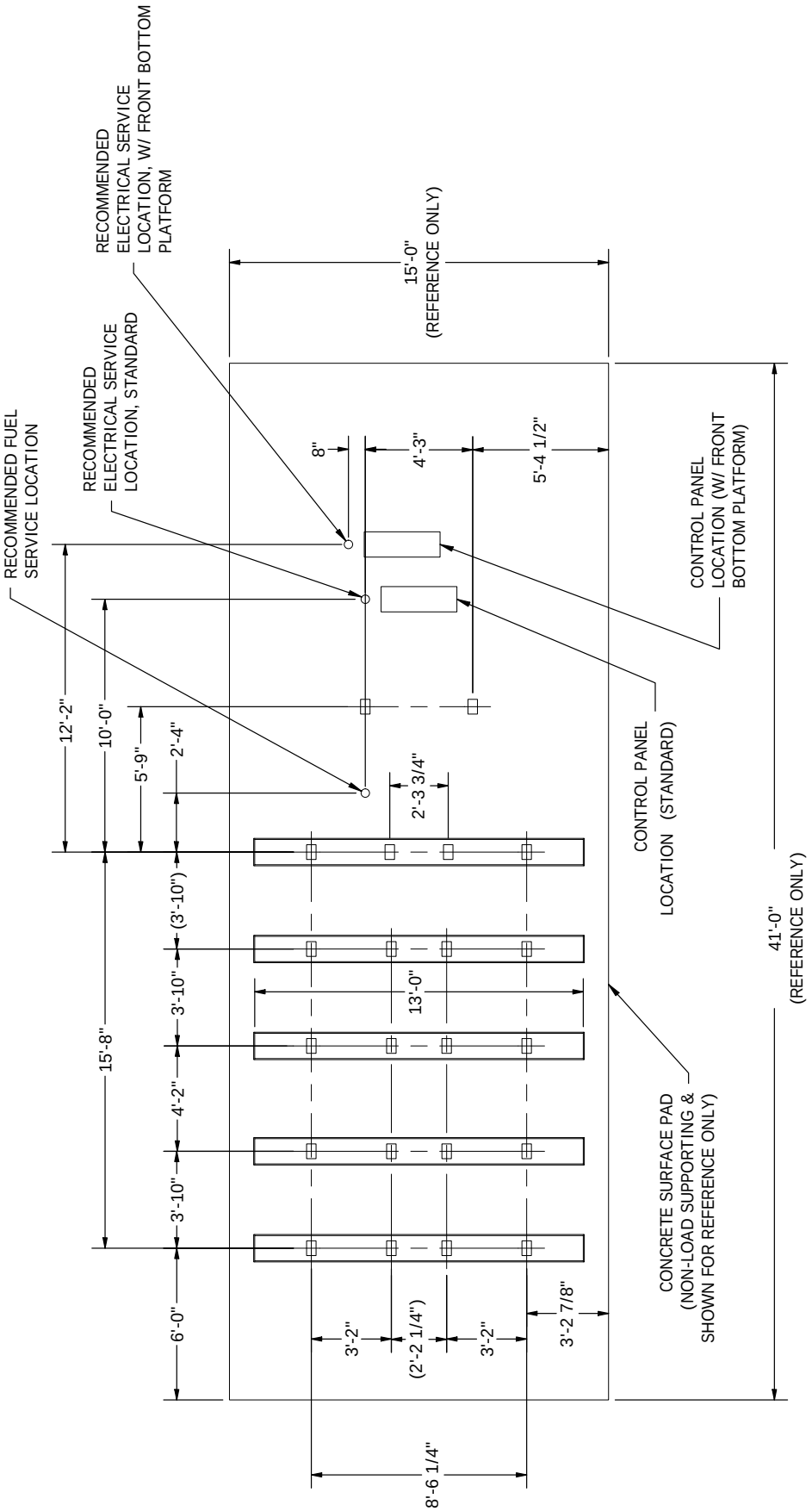


Figure 223. Load Point (Anchor Legs) Layout for Dryer Models D24108, D24150, and D24180

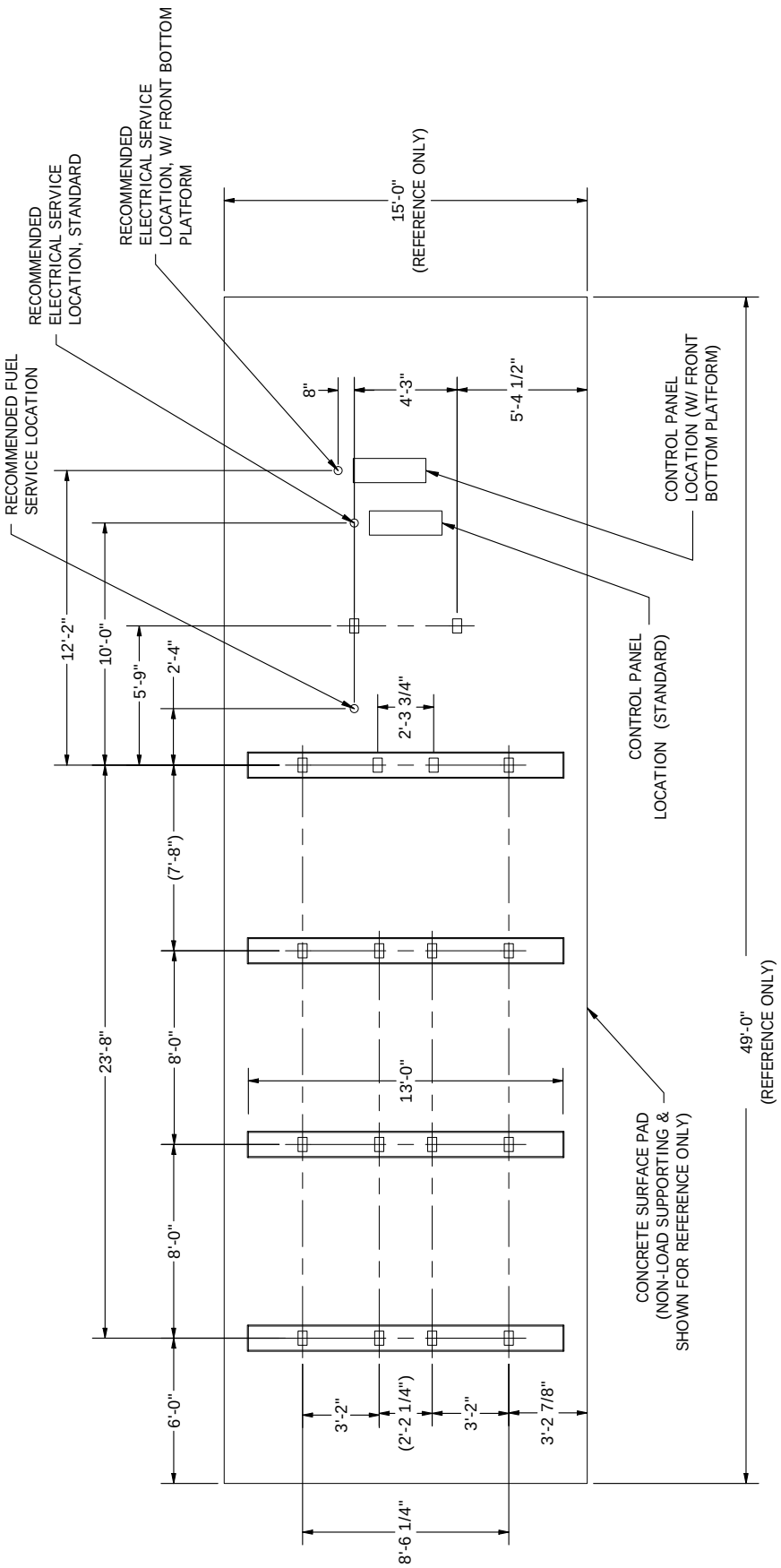


Figure 224. Load Point (anchor legs) Layout for Dryer Models D24210, D24240, D24260, D24330, and D24380

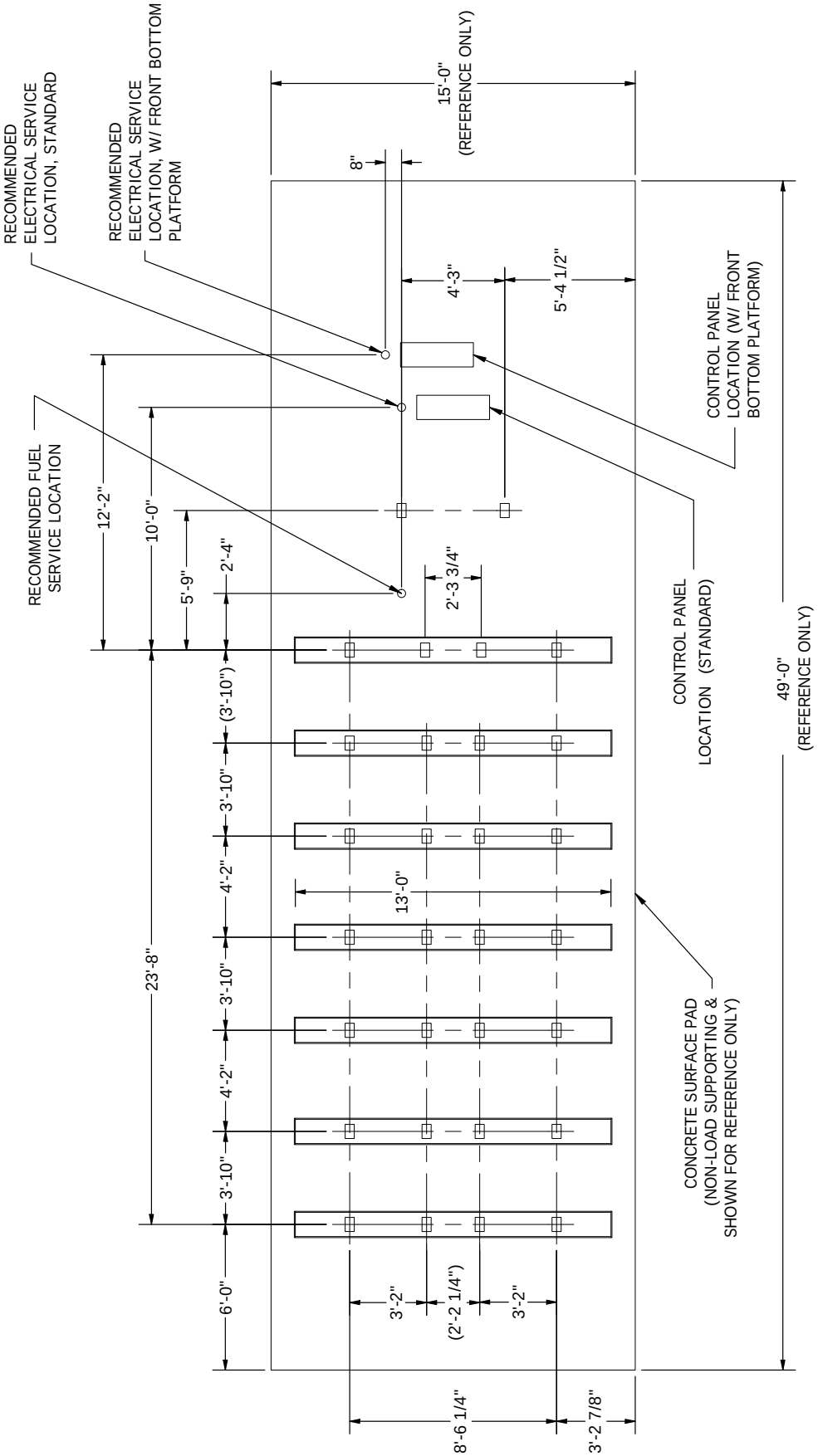
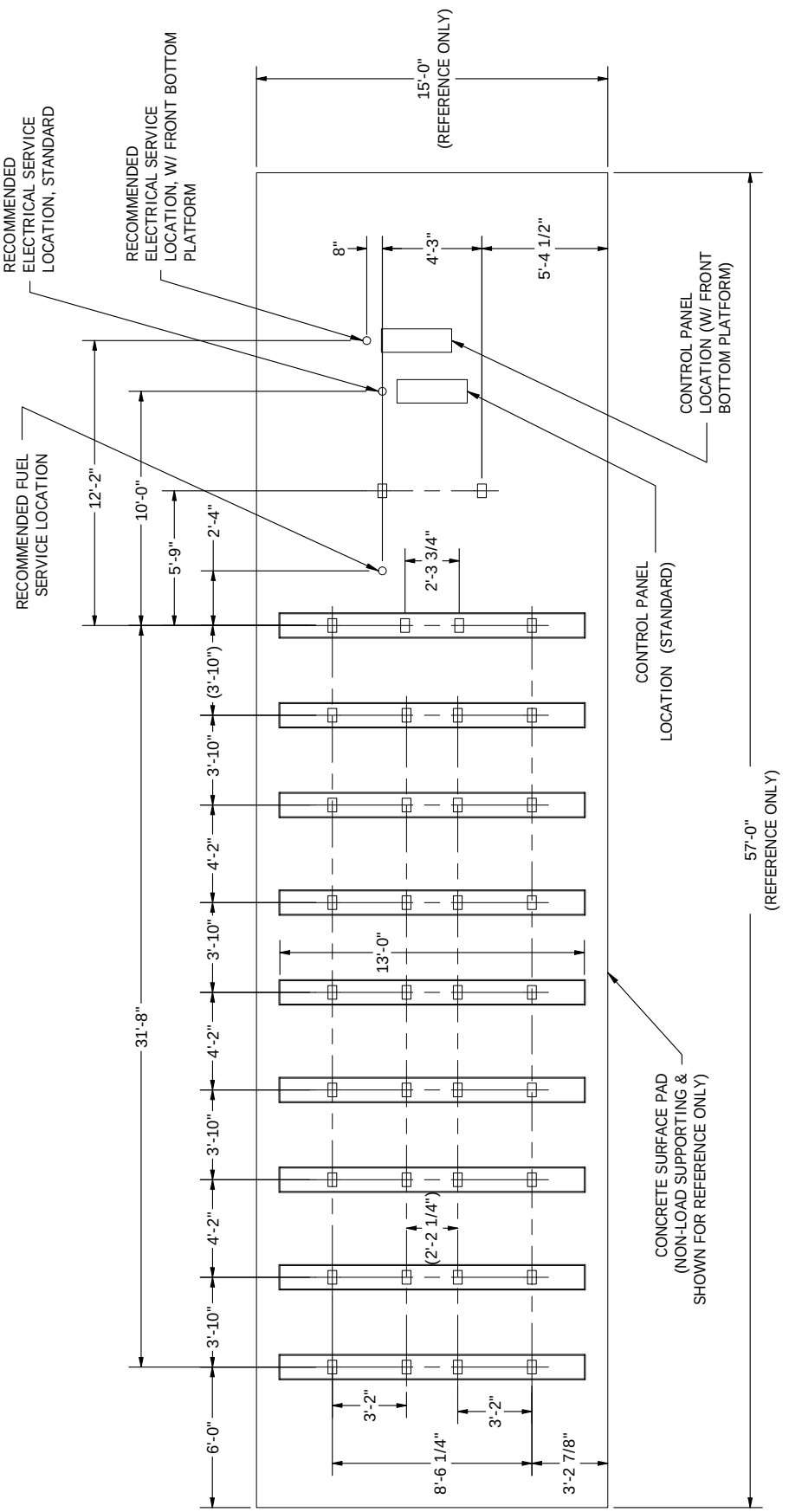


Figure 225. Load Point (Anchor Legs) Layout for Dryer Models D32260, D32340, D32440, and D32500



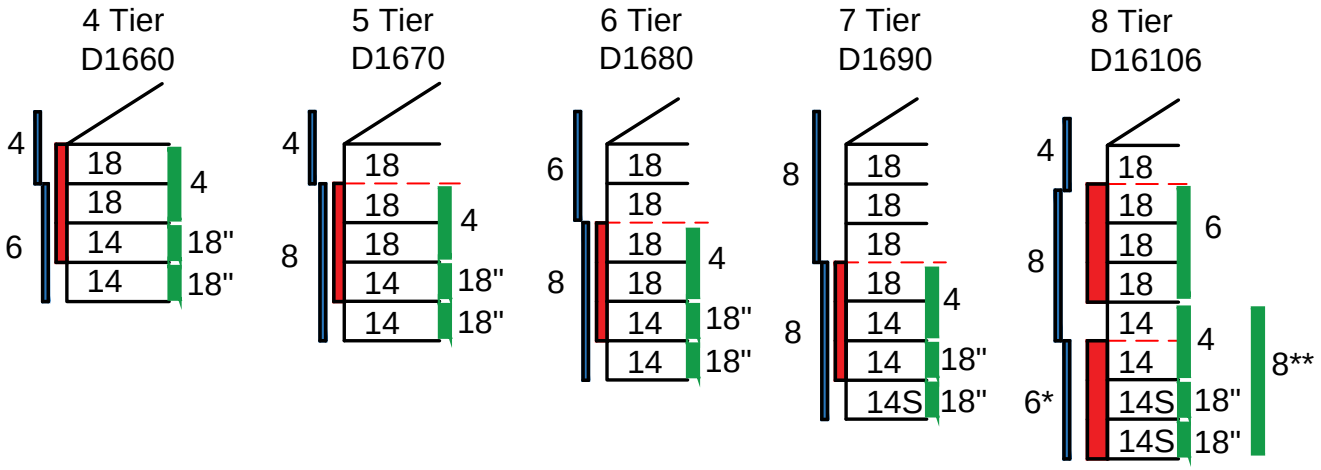
6. Appendix

6.1. Dryer Tier / Ladder / Shipping Layouts

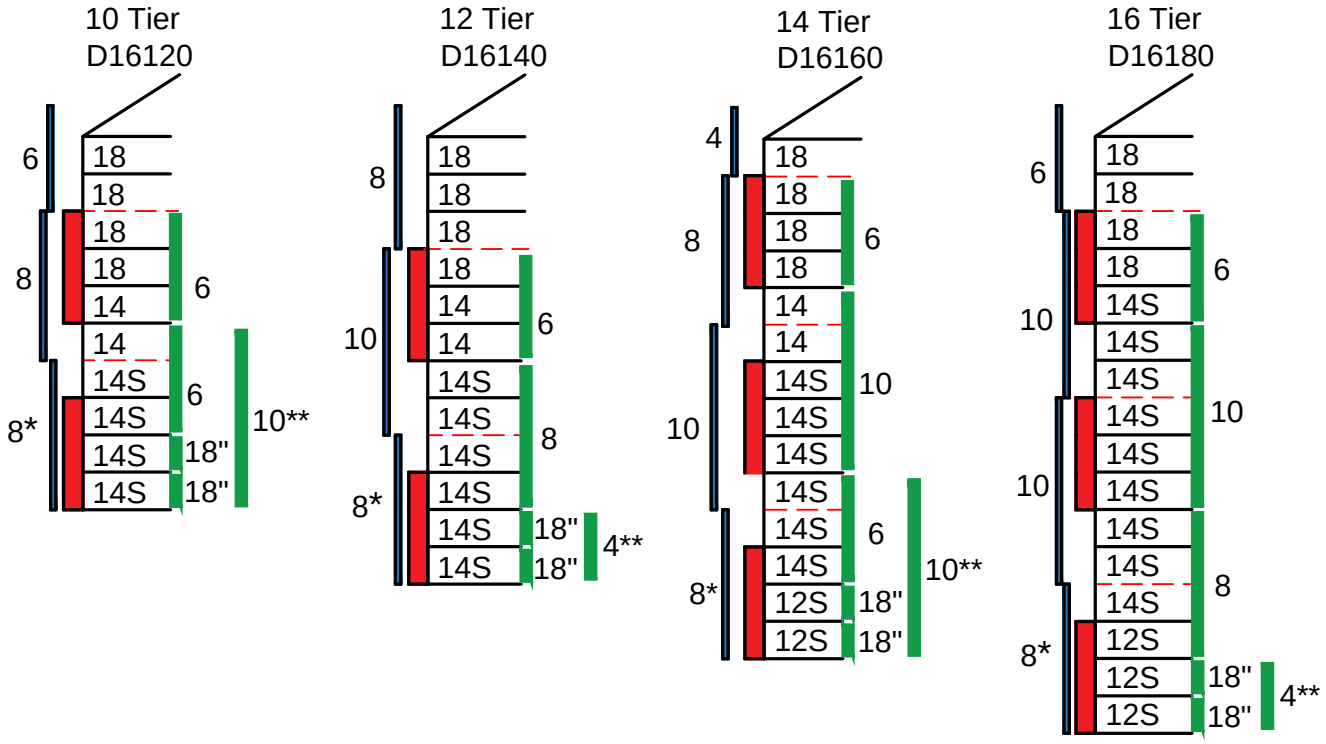
LEGEND

18, 14, OR 12	Indicates tier panel and material gauge thickness
14S or 12S	Indicates the gauge WITH side stiffeners
– – – – – – – –	Indicates where the dryer "splits" for shipping
▮	Indicates transition and blower tier is located
10* ▮	Indicates a length of ladder in feet and mounted location when shipped per section * Indicates ladder is 1 foot shorter for dryer with lower platform
10** ▮	Indicates a nominal length of ladder inside plenum. Actual length of ladder will be 6" shorter to fit in between floors. ** Indicates ladder length for ALL HEAT Dryer

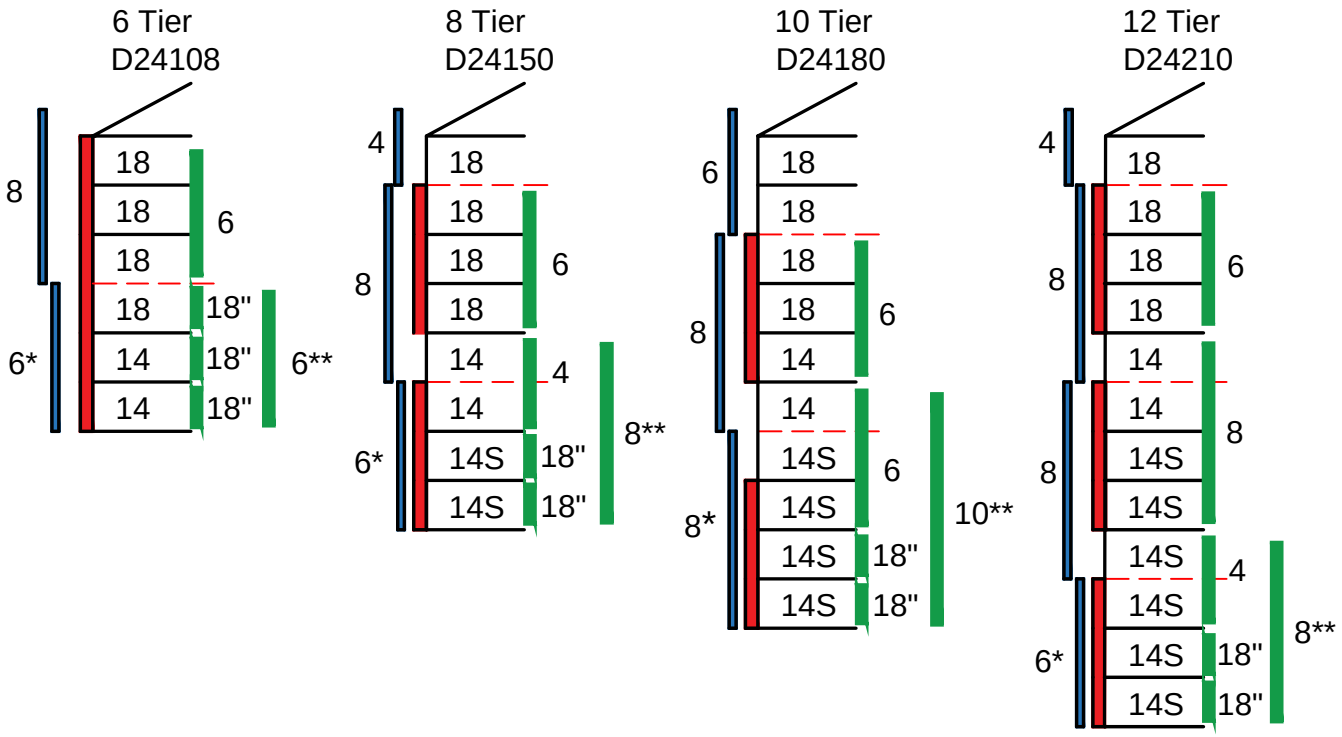
6.1.1 16' Dryer Sections – 4-8 Tiers



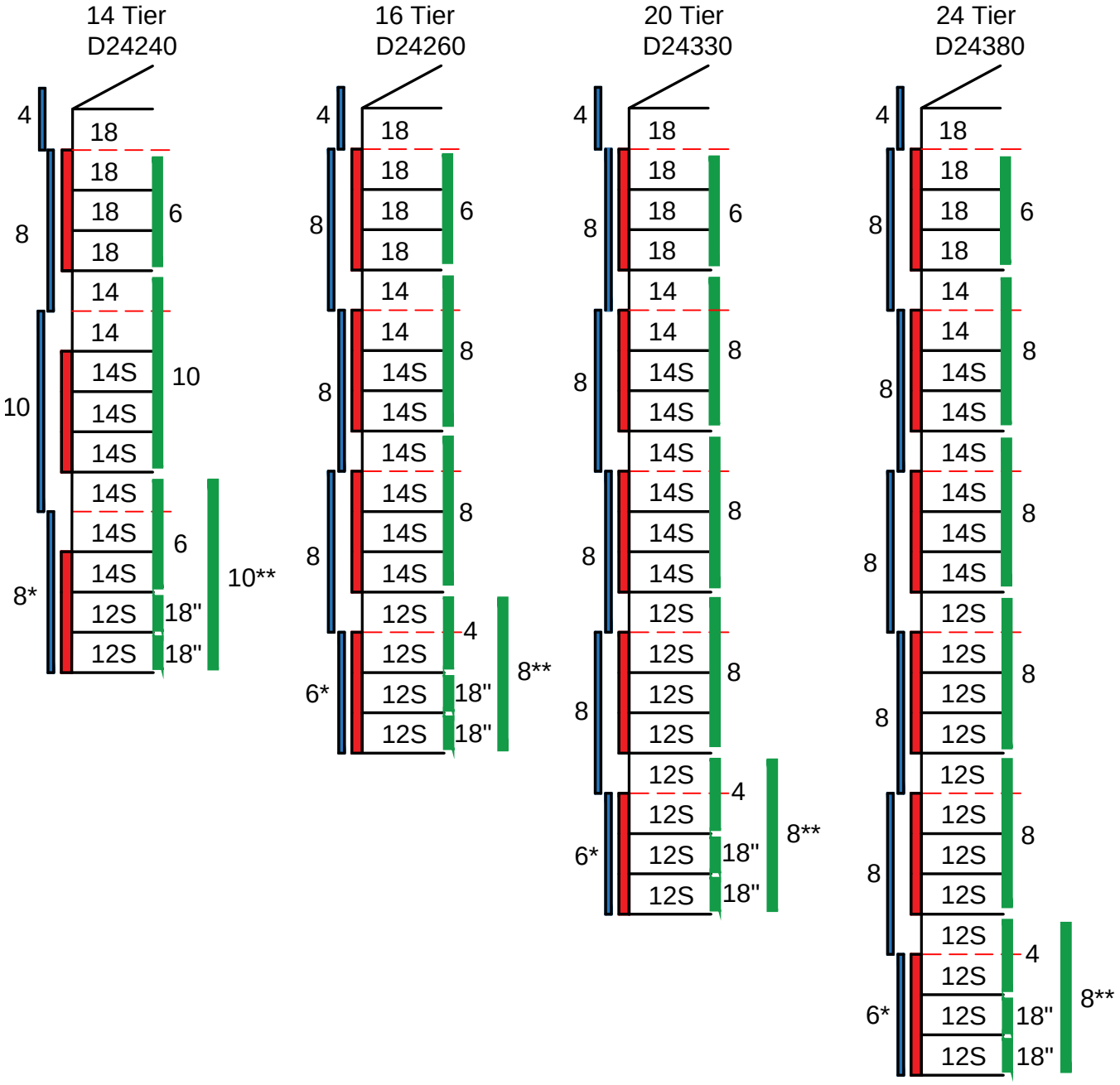
6.1.2 16' Dryer Sections – 10-16 Tiers



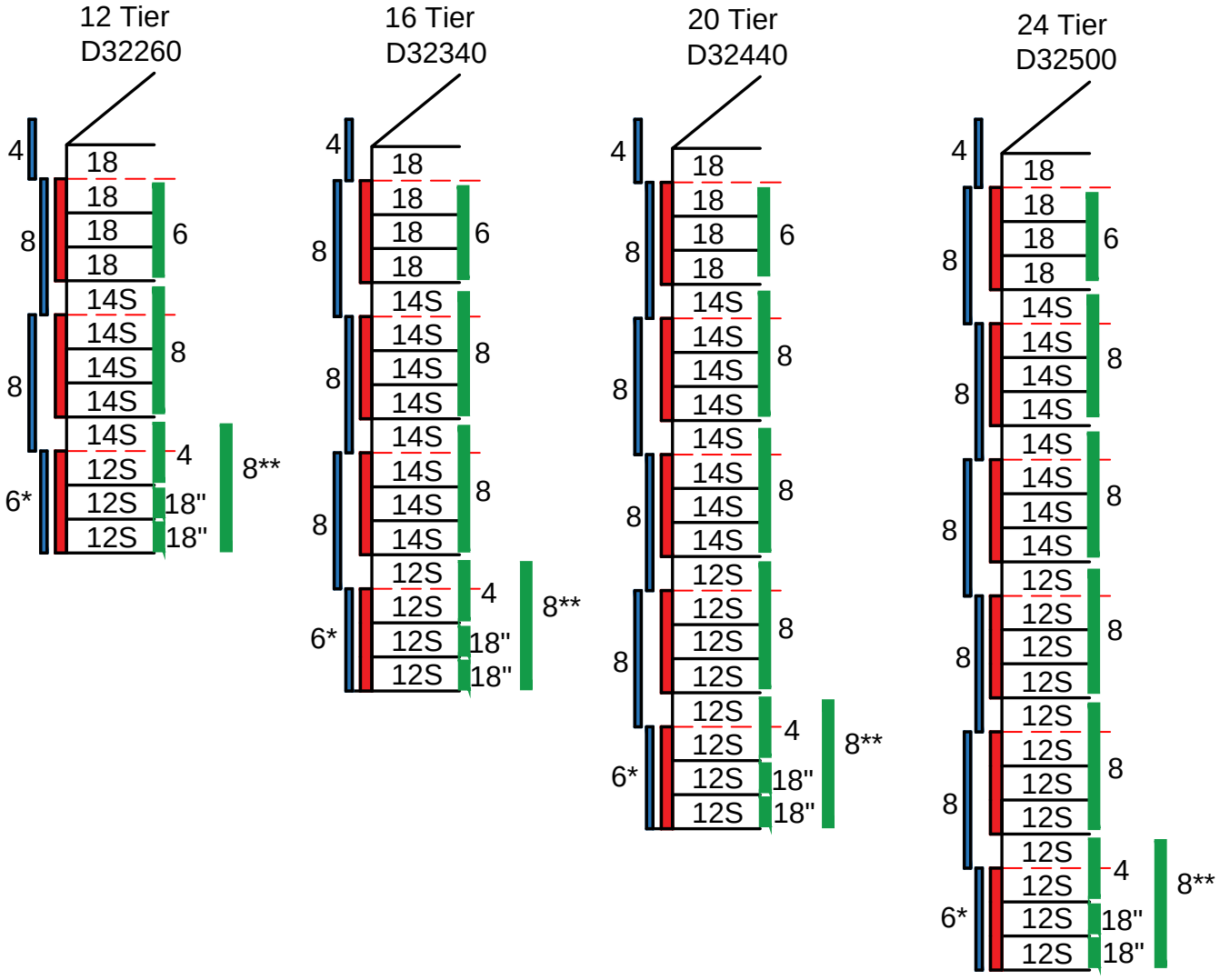
6.1.3 24' Dryer Sections – 6-12 Tiers



6.1.4 24' Dryer Sections – 14-24 Tiers



6.1.5 32' Dryer Sections

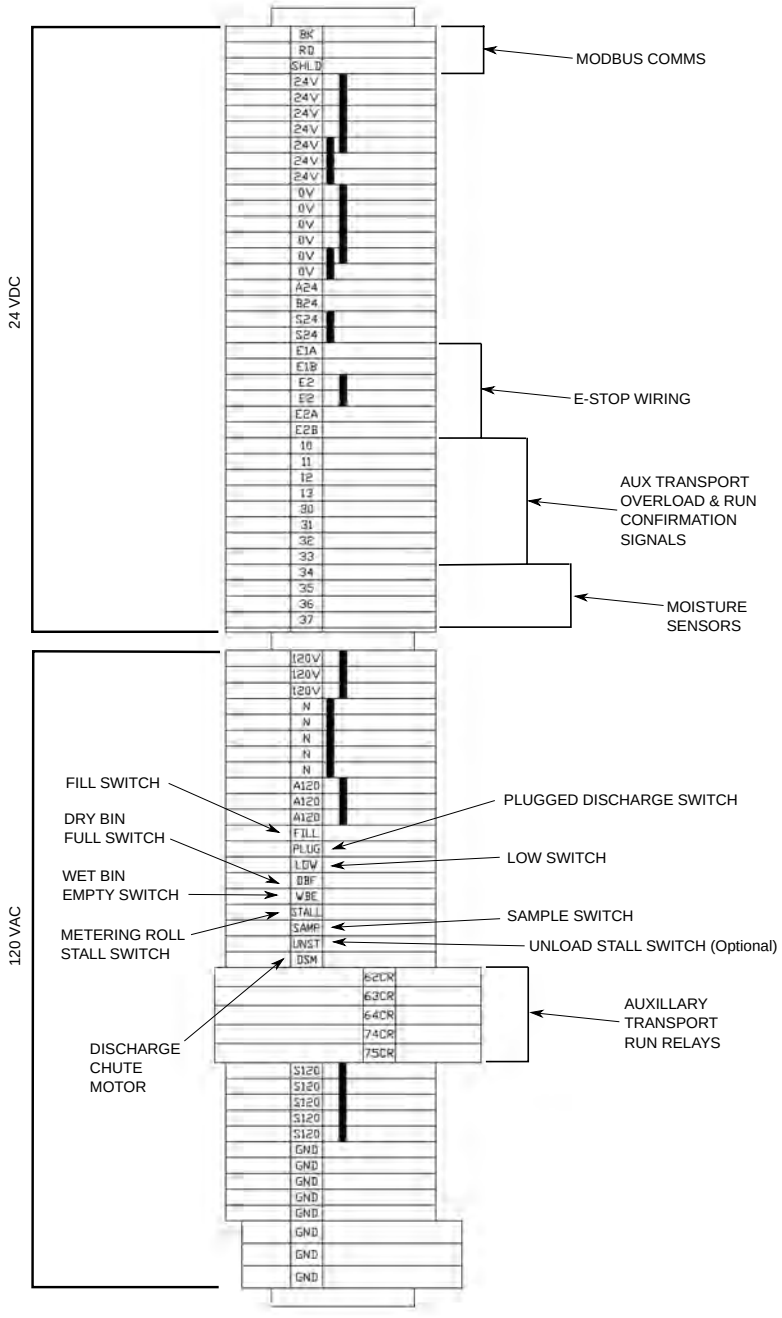


6.2. Main Control Box Terminal Strip (D Series)

Important

After installation is complete check the motor wires for the correct motor rotation and auger rotation direction.

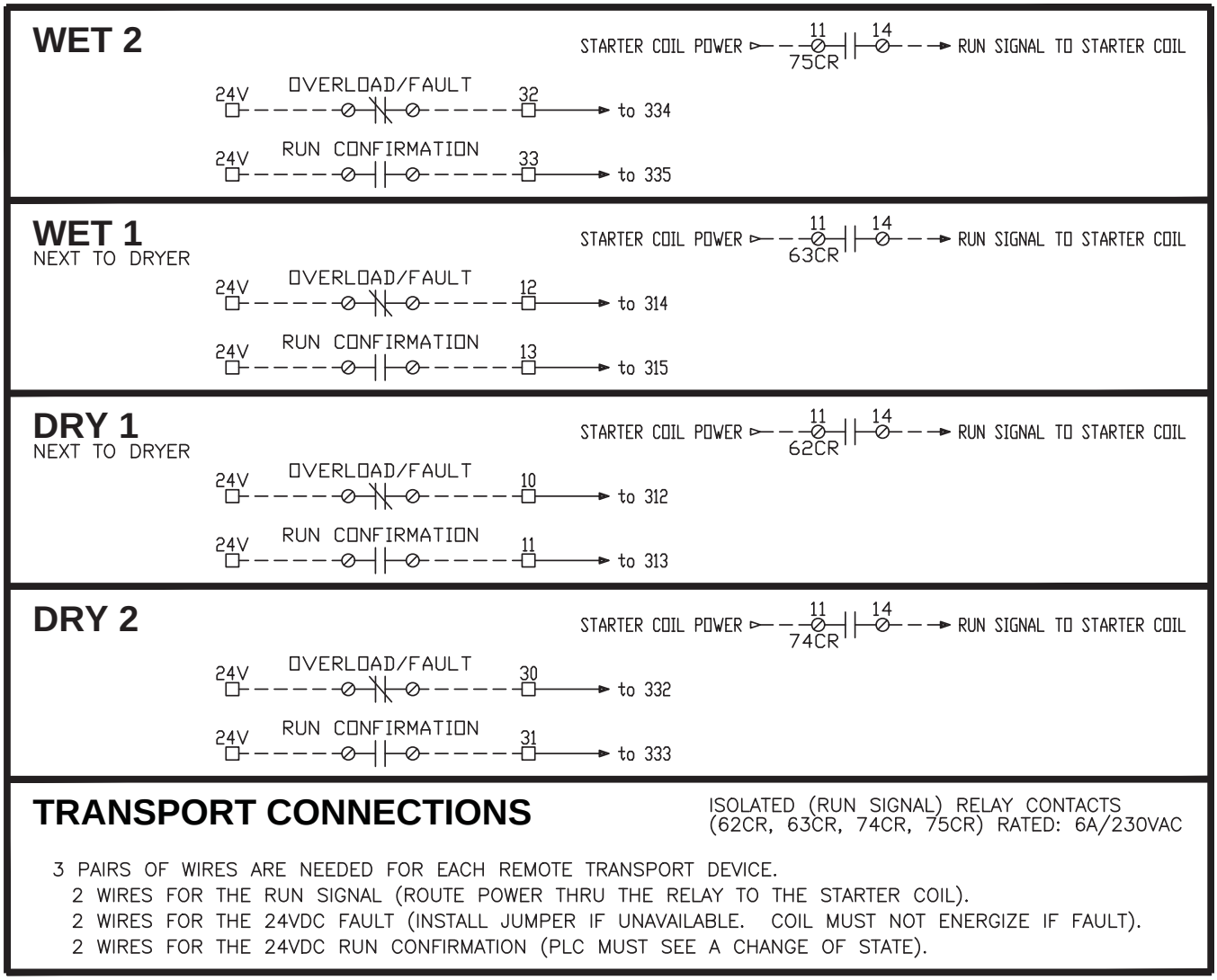
Figure 226. Main Control Box Terminal Strip (D Series)



6.3. Wiring External Transports

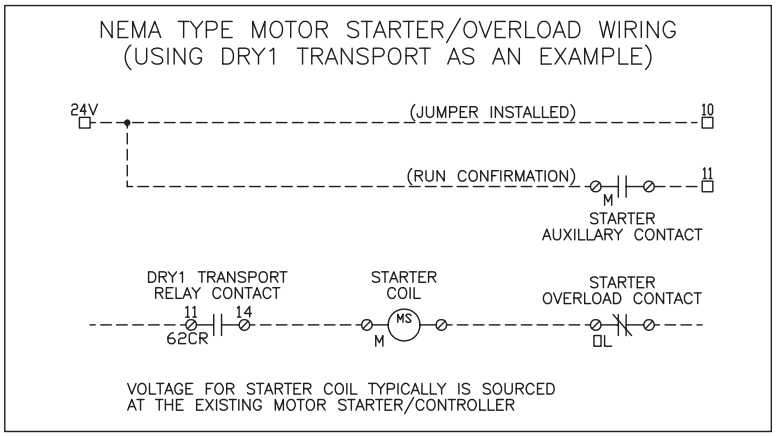
The customer is responsible for wiring any external transport equipment. The following schematics are for reference.

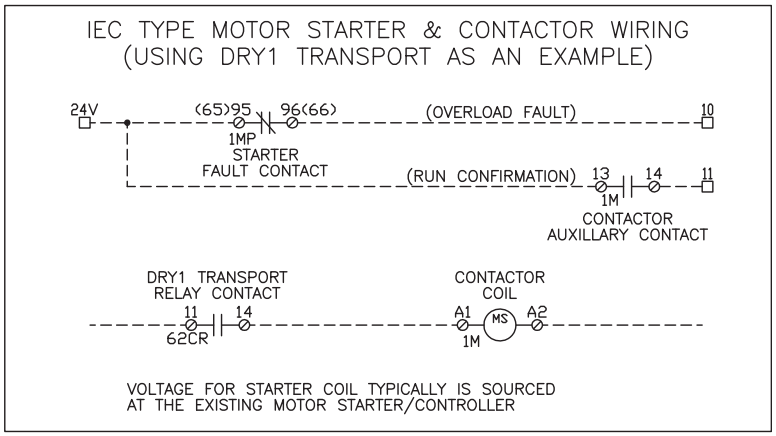
Figure 227. Wiring Connections for External Transports

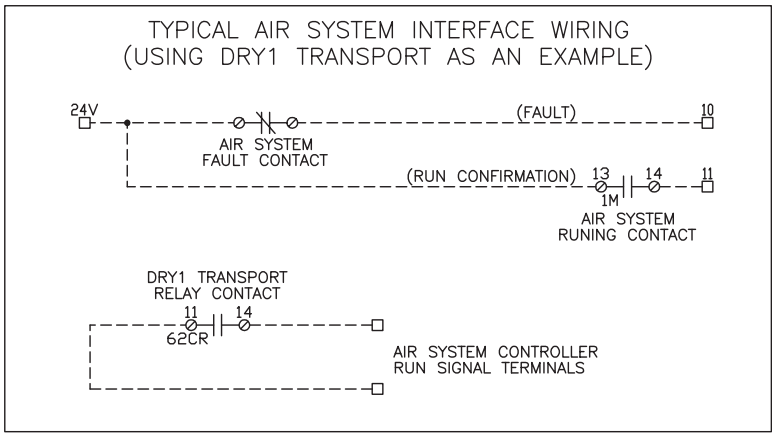


6.4. Wiring NEMA Starters / IEC Starters / Air Systems

Figure 228. Starter and Air System Wiring Diagrams



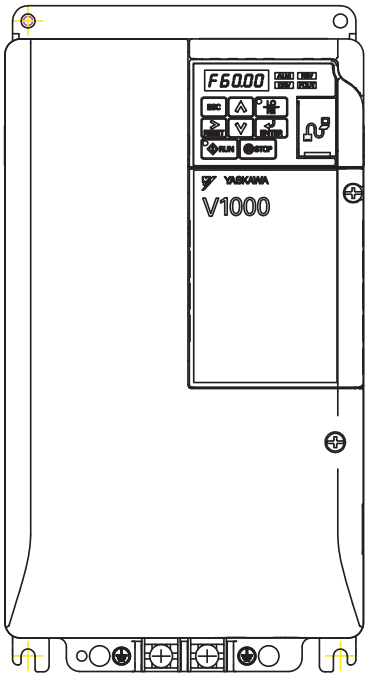




6.5. Optional Unload Motor VFD

NECO offers an optional variable frequency drive (VFD) for the unload auger system. **

Figure 229. Variable Frequency Drive (VFD)



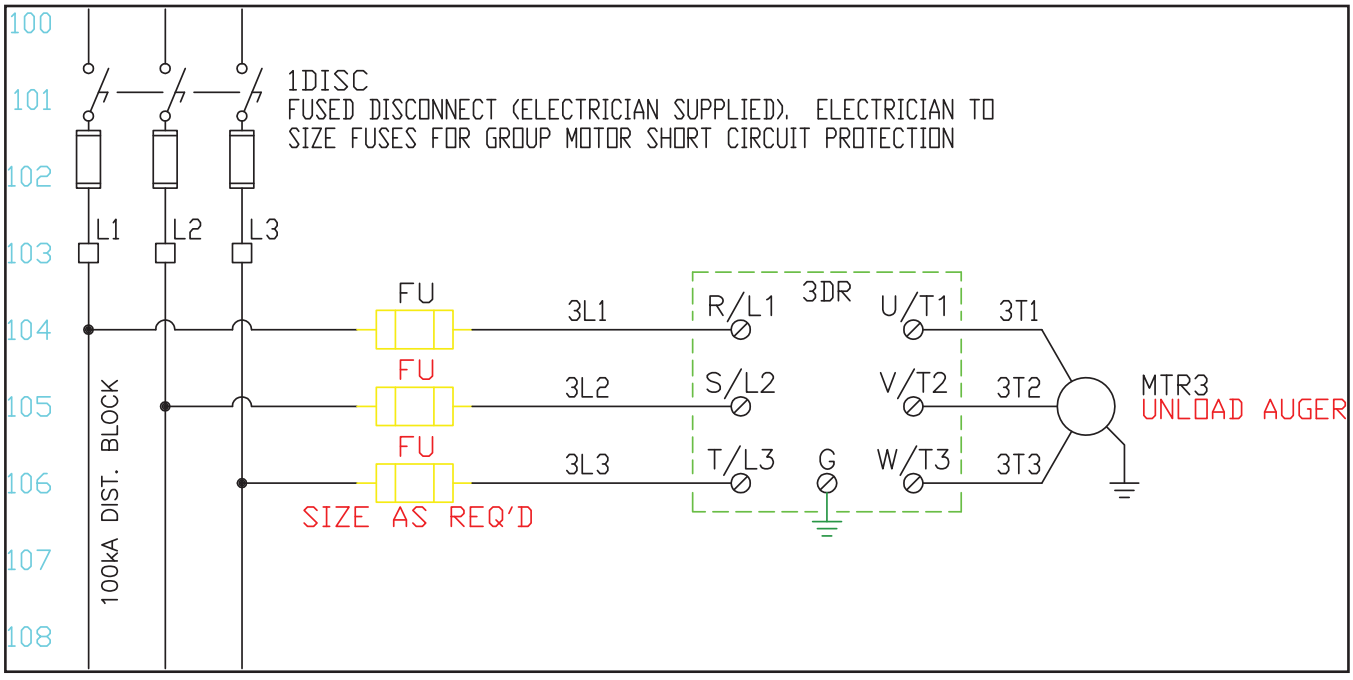
YASKAWA OPTIONAL VFD
FOR UNLOAD AUGER MOTOR

**** NOTE** - Other VFDs can be used. but the installer is responsible for proper connections and parameter settings for any non-NECO supplied units.

NECO can only support VFDs supplied & factory installed.

The following information and schematics outline the wiring for the VFD auger unload system:

Figure 230. Fuse Schematic



7. Parts

7.1. Full Roof Catwalk, Blower Mount and Raised Blower Platform Parts

Table 20. Standard Full Roof Catwalk Assemblies

Part Number	Description
7711100	16' Full Roof Catwalk
7711102	24' Full Roof Catwalk
7711104	32' Full Roof Catwalk

Table 21. Catwalk / Platform Unified Parts List

Part Number	Description	16'	24'	32'
7612502	Inner Leg Upright	6	10	14
7612507	Outer Leg Upright	6	10	14
7712355	96" Middle Toe-Board	N/A	4	8
7711151	106" RH Crossover Entry Toe-Board	2	2	2
7711152	106" LH Front Toe-Board	2	2	2
7711157	Crossover Toe-Board	4	4	4
7711158	106" LH Crossover Entry Toe-Board	2	2	2
7711165	Crossover Brace	4	4	4
7711167	Handrail Support Brace	2	2	2
7612974	80-3/4" Walk Surface	N/A	2	2
7711153	Crossover Walk Surface	2	2	2
7711170	103-3/16" Walk Surface	2	4	4
7711171	88" Walk Surface	2	N/A	N/A
7712378	96" Middle Walk Surface	N/A	N/A	2
7712569	Walk Surface Splice Stiffener	2	4	6
7712573	Walk Surface Stiffener	9	13	17
7712893	End Upright / Ladder Support Upright	8	8	8
7712894	End Support Brace	8	8	8
7712895	End Horizontal Support	4	4	4
F118072	Door Handle	2	2	2
035369P	3" x 3" Access Door Hinge	4	4	4

Table 21 Catwalk / Platform Unified Parts List (continued)

Part Number	Description	16'	24'	32'
7612975	Access Door	2	2	2
7612976	Access Panel Cross Brace	2	2	2
7712593	Door Hinge Mount	2	2	2
080085	End Upright / Ladder Extension	8	8	8
7712576	Handrail Cross Brace	6	6	6
7712583	End Diagonal Brace	6	6	6
7711154	Crossover Corner Upright	8	8	8
7711155	Mid Upright	4	4	4
7711150	106" Upper Front Handrail	4	4	4
7711156	LH Short Corner Handrail	2	2	2
7711159	Crossover Handrail	4	4	4
7711160	RH Short Corner Handrail	2	2	2
7711161	LH Long Corner Handrail	2	2	2
7711163	RH Long Corner Handrail	2	2	2
7712394	96" Upper Middle Handrail	0	4	8
7612510	Handrail Splice	4	8	12
7714256	Handrail Splice Plate	8	8	8
7711162	Lower 10.6" Handrail	4	4	4
7711164	Lower Crossover Handrail	4	4	4
7711166	13" Lower Handrail	N/A	4	N/A
7711169	50-1/2" Lower Middle Handrail	N/A	4	N/A
7712533	96" Lower Middle Handrail	N/A	4	8
7712568	106" Lower Front Handrail	6	4	4
7712584	Side Mid Diagonal Brace	N/A	8	16
7712587	Front Side Diagonal Brace	6	12	12
7711291	17" Blower and Motor Mount Base			

Table 22. Catwalk Hardware

Part Number	Description	16' (7711100)	24' (7711102)	32' (7711104)
081544	1/4"-20 x 3/4" Grade 5 Flange Bolt, Zinc Pl.	282	356	378
003160	1/4"-20 Serrated Flange Nut, Zinc Plated	252	356	378
003057	3/8" x 1" Grade 5 Flange Bolt, Zinc Plated	228	268	308
003192	3/8" Flat Washer, Zinc Plated	228	268	308
003382	3/8"-16 Serrated Flange Nut, Zinc Plated	228	268	308

Table 23. 16' Blower Platform

Part Number	Description	Quantity
7711155	Mid Upright	5
7711166	13" Lower Handrail	1
7711167	Handrail Support Brace	2
7711188	16' Blower Mount Outer Leg Upright	1
7711189	16' Blower Mount Inner Leg Upright	1
7711230	Cyclone Upper Brace	2
7711231	Cyclone Lower Brace	2
7711169	50-1/2" Lower Handrail	3
7711287	37-3/4" Lower Handrail	4
7711288	Mid Diagonal Brace	4
7711289	Motor Mount Upright / Connector Upright	2
7711291	17" Fan Motor Mount Base	1
7712576	Handrail Cross Brace	4

Table 24. 16' BoH Blower Platform

Part Number	Description	Quantity
081544	1/4"-20 x 3/4" G5 Flange Bolt, Zinc Pl.	2
003160	1/4"-20 Serrated Flange Nut, Zinc Plated	2
003057	3/8" x 1" Grade 5 Flange Bolt, Zinc Plated	69
003192	3/8" Flat Washer, Zinc Plated	69
003382	3/8"-16 Serrated Flange Nut, Zinc Plated	69

Table 25. 24' Blower Platform

Part Number	Description	Quantity
088028	Ladder Clip and Bolt Assembly	4
7711155	Mid Upright	3
7711166	13" Lower Handrail	1
7711167	Handrail Support Brace	1
7711169	50-1/2" Lower Middle Handrail	1
7711176	Blower Platform Surface	1
7711177	Upper Blower Platform Toe-Board	2
7711178	Handrail Junction Mount	2
7711179	45-3/4" Handrail	2
7711180	Work Platform Upright	2
7711181	68-1/2" Upper Handrail	2
7711182	Blower Platform Lower Handrail	2
7711183	24' Work Platform End Upright	2
7711184	47-1/2" Diagonal Brace	4
7711185	13-1/4" Blower Platform Ladder Support	2
7711186	8" Blower Platform Ladder Support	2
7711230	Cyclone Upper Brace	2
7711231	Cyclone Lower Brace	2
7711289	Motor Mount Upright / Connector Upright	2
7711291	17" Fan Motor Mount Brace	1
7712573	Floor Support	1
7712576	Handrail Cross Brace	2
7712583	End Diagonal Brace	2
607374	18" Ladder Section	1

Table 26. 24' BoH Blower Platform

Part Number	Description	Quantity
081544	1/4"-20 x 3/4" G5 Flange Bolt, Zinc Pl.	22
003160	1/4"-20 Serrated Flange Nut, Zinc Plated	22
003057	3/8" x 1" Grade 5 Flange Bolt, Zinc Plated	51
003192	3/8" Flat Washer, Zinc Plated	51
003382	3/8"-16 Serrated Flange Nut, Zinc Plated	55
003485	3/4"-14 Self Drilling Screw	6

Table 27. 32' Blower Platform

Part Number	Description	Quantity
088028	Ladder Clip and Bolt Assembly	4
7711155	Mid Upright	3
7711166	13" Lower Handrail	1
7711167	Handrail Support Brace	1
7711176	Blower Platform Surface	1
7711177	Upper Blower Platform Toe-Board	2
7612973	End Toe-Board	
7711178	Handrail Junction Mount	4
7711179	45-3/4" Handrail	4
7711180	Work Platform Upright	2
7711181	68-1/2" Upper Handrail	2
7711182	Blower Platform Lower Handrail	2
7711184	47-1/2" Diagonal Brace	4
7711185	13-1/4" Blower Platform Ladder Support	4
7711230	Cyclone Upper Brace	2
7711231	Cyclone Lower Brace	2
7711289	Motor Mount Upright / Connector Upright	6
7711291	17" Fan Motor Mount Brace	1
7711293	32' Upright Extender	4
7711294	45-1/2" Notched Handrail	2
7711295	32' Blower Platform End Handrail Support	2
7711296	32' Blower Platform Ladder Cage Support	4
7711297	45-1/2" Handrail	2
7711299	45-1/2" Middle Lower Handrail	1
7711314	7-3/4" Lower Handrail	1
7712573	Floor Support	1
7712576	Handrail Cross Brace	3
7712583	End Diagonal Brace	2
10021889	5' Ladder Section	1

Table 28. 32' BoH Blower Platform

Part Number	Description	Quantity
081544	1/4"-20 x 3/4" G5 Flange Bolt, Zinc Pl.	16
003160	1/4"-20 Serrated Flange Nut, Zinc Plated	16
003057	3/8" x 1" Grade 5 Flange Bolt, Zinc Plated	103
003192	3/8" Flat Washer, Zinc Plated	103
003382	3/8"-16 Serrated Flange Nut, Zinc Plated	107
003485	3/4"-14 Self Drilling Screw	6

7.2. Blower Pipe

Note

All blower pipes are 8" diameter.

Description	16ft Dryer		24ft Dryer		32ft Dryer	
	Part Number	Quantity	Part Number	Quanti-ty	Part Number	Quanti-ty
Aspirator Gravity Fill Top Assy	7711106	1	7711304	1	7711305	1
Cyclone Assy	7711215 / (L)	1	7711215	1	7711215	1
Cyclone Upper Brace	7711230	2	7711230	2	7711230	2
Cyclone Lower Brace	7711231	2	7711231	2	7711231	2
Cyclone Short Reducer 10 to 8	7711242	1	7711242	1	7711242	1
8" Rolled Lip Duct 5' L	7711251	1	7711251	1	7711251	2
8" Duct Adjustable Sleeve 11" L	7711253	2	7711253	3	7711253	3
8" Duct 90 Deg Elbow	7711254	1	7711254	2	7711254	2
8" Duct Galvanized Clamp w/ Gasket	7711258	6	7711258	8	7711258	8

7.3. Aspirator Blower Motor Harness

Note

The aspirator blower motor harness must match with the dryer power system.

Table 29. Aspirator Blower Motor Harness Parts

Blower Motor Harness		Motor Power System	Applicable Dryer Models
Part Number	Length		
7711203-230-50	50'	230V 3Ph	D1670, D1680, D1690, D16106, D24108, D24150
7711203-380-50	50'	380V 3Ph	
7711203-460-50	50'	460V 3Ph	
7711203-575-50	50'	575V 3Ph	
7711203-230-70	70'	230V 3Ph	D16120, D16140, D16160, D24180, D24210, D24240, D24260, D32260, D32340
7711203-380-70	70'	380V 3Ph	
7711203-460-70	70'	460V 3Ph	
7711203-575-70	70'	575V 3Ph	
7711203-230-90	90'	230V 3Ph	D24330, D24380, D32440, D32500
7711203-380-90	90'	380V 3Ph	
7711203-460-90	90'	460V 3Ph	
7711203-575-90	90'	575V 3Ph	

7.4. Discharge Pipe

Table 30. Discharge Pipe Part Descriptions

Part Number	Description
7711245	Pipe Support Flange
7711250	6" Rolled Lip Duct 5' L
7711252	6" Duct Adjustable Sleeve 11" L
7711256	6" Duct 30 Deg Elbow
7711257	6" Duct Galvanized Clamp w/ Gasket
7711261	6" Duct Hanger

Table 31. Discharge Pipe Parts List

Kit #	7711245	7711250	7711252	7711256	7711257	7711261	Applicable Dryer Models
7711271	2	3	2	2	7	3	D1660, K600, D1670, K700, D1680, K800, D1690, K900, D24108
7711272	2	4	2	2	8	3	D16106, D16120, D24150, D24180
7711273	3	5	2	2	9	4	D16140, D16160, D24210, D24240, D32260
7711274	4	6	2	2	10	5	D16180, D24260, D32340
7711275	7	9	2	2	13	8	D24330, D24380, D32440, D32500

7.5. Hardware for Blower and Cyclone (7711175)

Note

- Use one 1/4" flanged bolt and whiz nut in 1/4" hardware location.
- Use one 3/8" bolt, washer, and whiz nut in 3/8" hardware location.

Table 32. Hardware for Blower and Cyclone (7711175):

Part Number	Description	Quantity
081544	Cp Screw Flanged, 1/4"-20 X 3/4"	20
003160	Nut Whizlock, 1/4"-20	20
003057	Cp Screw, 3/8" X 1"	24
003192	Flat Washer, 3/8"	24
003382	Nut Whizlock, 3/8"-16	24
004178	Bolt Bin, .313" X 1.00"	6
003163	Nut Whizlock, 5/16"-18	6
7711264	6" Duct O-Ring	1
7711265	8" Duct O-Ring	2

8. Bolt Torque

Table 33 gives the correct torque values for various hardware. Tighten all bolts to the torque specified, unless otherwise noted. Check tightness periodically, using Table 33 as a guide. Replace the hardware with the same strength bolt, contact NECO if you are unsure.

Table 33. Recommended Bolt Torque[1]

Size	Dry or Lubricated	Threads per inch (Course/ Fine)	Area of Bolt (sq in.)		Recommended Torque (ft-lb)							
					Grade 2		Grade 5		Grade 8		8.8 S/S	
			Coarse	Fine	Coarse	Fine	Coarse	Fine	Coarse	Fine	Coarse	Fine
1/4"	Dry	20/28	0.0318	0.0364	5.5	6.3	8	10	12	14	6.3	7.8
	Lubricated				6.3	4.7	6.3	7.2	9	10	-	-
5/16"	Dry	18/24	0.0524	0.058	11	12	17	19	24	27	11	11.8
	Lubricated				8	9	13	14	18	20	-	-
3/8"	Dry	16/24	0.0775	0.0878	20	23	30	35	45	50	20	22
	Lubricated				15	17	23	25	35	35	-	-
7/16"	Dry	14/20	0.1063	0.1187	32	36	50	55	70	80	31	33
	Lubricated				24	27	35	40	50	80	-	-
1/2"	Dry	13/20	0.1419	0.1599	50	55	75	85	110	120	43	45
	Lubricated				35	40	55	65	80	90	-	-
9/16"	Dry	12/18	0.182	0.203	70	80	110	120	150	170	57	63
	Lubricated				55	60	80	90	110	130	-	-
5/8"	Dry	11/18	0.226	0.256	100	110	150	170	210	240	93	104
	Lubricated				75	85	110	130	160	180	-	-
3/4"	Dry	10/16	0.334	0.373	175	200	260	300	380	420	128	124
	Lubricated				130	140	200	220	280	310	-	-
7/8"	Dry	9/14	0.462	0.508	170	180	430	470	600	670	194	193
	Lubricated				125	140	320	350	180	180	-	-
1"	Dry	8/14	0.606	0.679	250	280	640	720	910	1020	287	289
	Lubricated				190	210	480	540	680	760	-	-
1-1/8"	Dry	7/12	0.763	0.856	350	400	790	890	1290	1440	288	290
	Lubricated				270	300	590	670	970	1080	-	-
1-1/4"	Dry	7/12	0.989	1.073	500	550	1120	1240	1820	2010	289	291
	Lubricated				380	420	840	930	1360	1510	-	-
1-1/2"	Dry	6/12	1.405	1.581	870	960	1950	2200	3160	3560	-	-
	Lubricated				650	730	1460	1640	2370	2670	-	-

1. Torque value for bolts and cap screws are identified by their head markings. Established at 75% of yield strength of bolt given the cross-sectional area.

Note

Torque figures in table are valid for non-greased or non-oiled threads and head unless otherwise specified. Therefore, do not grease or oil bolts or cap screws unless otherwise specified in this manual. When using locking elements, increase torque values by 5%.

9. Limited Warranty

For a period of one (1) year after shipment of goods by the Buyer to the Buyer's customer, AGI will supply, free of charge, FOB per AGI's factory located in Omaha, Nebraska, replacement parts for any parts that AGI identifies to be defective due to workmanship or material.

- This limited warranty does not extend to parts that wear due to normal operation and need to be replaced periodically.
- Goods not manufactured by AGI carry only their manufacturer's warranty.
- This undertaking is in lieu of all other warranties, expressed or implied, including merchantability and fitness for a particular purpose.
- You must obtain a "Return Authority" form AGI prior to returning any defective goods. Those defective goods must be returned, freight-prepaid, to the AGI factory in Omaha, NE. See the back cover of this manual for complete address information.
- AGI reserves the right to make changes or improvements to products and goods without incurring any obligation with respect to previously manufactured products.
- Failure to follow the instructions contained in this manual, as well as the existence of any of the conditions listed below, will cause this Limited Warranty to be null and void:
    1. Improper assembly.
    2. Improper installation, including power and wiring.
    3. Unauthorized alteration of the product or components therein.
    4. Operation of the unit when repairs are needed.
    5. Use of unauthorized parts.
    6. Operation by children or uninstructed personnel.
    7. Processing of materials that are abrasive, that do not flow freely, or that are otherwise unsuited for processing in farm equipment.
    8. Misuse of the equipment or any of its components.
    9. Damage due to negligence, abuse, or accidents.

LIMITATION OF LIABILITY

- Buyer agrees that in no event shall AGI have liability for direct damages in excess of the contract price of the goods for which the claim is made.
- Buyer further agrees that in no event shall AGI have liability for loss of use, loss of profits, or for any indirect, incidental, or consequential damages on any claim of any kind.

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Please include the part number listed on the cover page in your message.