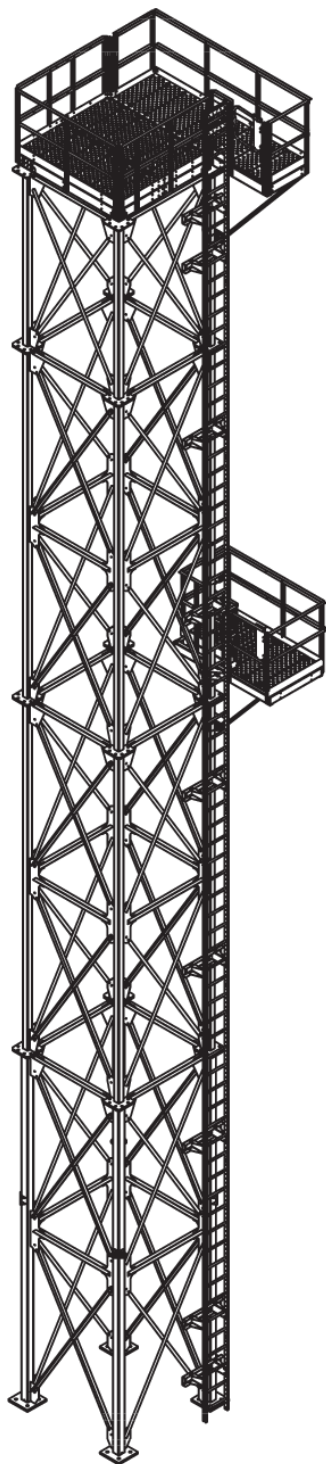




SUPPORT TOWER

For Chain Loop Conveyor

Assembly and Owner's Manual



Sukup Manufacturing Co.

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<u>DATE</u>	<u>REVISIONS</u>	<u>PAGES</u>
01/29/2020	– Updated platform collapse warning decal -----	6-7
	Added instructions for preparing & attaching cantilever platform -----	21-22
	Updated cantilever platform part number -----	23
	Updated top platform halves drawings & part numbers -----	43-44
	Added drawing & parts lists for top & cantilever platforms-----	45-46

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Introduction

This support tower was carefully designed to give years of dependable service and was manufactured with the finest materials available. This manual includes information relating to safety, installation and maintenance, and should be thoroughly read prior to erection of the support tower. Due to the scope of projects involving material handling equipment and the wide variety of situations, this manual cannot cover all aspects. Qualified civil engineers and contractors should be relied upon for site design, layout and construction. This manual is to be used as a guideline only. The reliability, safety and good service life of this equipment depends to a very large extent on the care taken in installing and otherwise preparing this equipment for its intended use.

Receiving and Inspection

Carefully inspect the shipment for damage as soon as it is received. Verify quantity of parts or packages actually received corresponds to quantity shown on packing slip. Report any damage or shortage to delivering carrier as soon as possible. Sukup Manufacturing's responsibility for damage to equipment ended with acceptance by delivering carrier. Refer to bill of lading. Save all paperwork and documentation furnished with components.

Pre-Installation Information

Support towers are designed to be site specific and only support equipment specified by the customer. The equipment list must be provided to Sukup Manufacturing Co. at the time of quoting. This may include, but is not necessarily limited to, grain elevators, conveyors, distributors, spouting and catwalks.

Sukup Manufacturing Co. is the provider of tower components, but does not assume responsibility for installation. Installation recommendations contained within this manual are general guidelines only. It is the responsibility of user and/or installer to consult a civil or structural engineer regarding installation, including but not limited to foundation, construction, supervision, and site-specific factors.

NOTE: The **MOST IMPORTANT** preparations are retaining a licensed engineer to plan installation and a qualified millwright or contractor to erect support tower and accompanying equipment and structures.

Foundation

DISCLAIMER: It shall be the sole responsibility of the customer to obtain actual foundation drawings designed by and constructed to the specifications of a licensed professional structural engineer with knowledge of the actual soil and load specific to the project and location. Consideration should also include, but not be limited to, live loads, dead loads, wind loads, soil bearing loads, seismic zone, proper moisture run-off on top of base, and types of aeration applied for the project.

Sukup Manufacturing Co. will not be responsible for any damage to a product, including, but not limited to, any damage that results from poor soil conditions or inadequate concrete type, grade, bearing strength, and construction method. Soil bearing tests must be performed by a competent, independent, engineering firm. Concrete foundation construction must be done by a competent concrete contractor.



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MATERIAL HANDLING SUPPORT STRUCTURE LIMITED WARRANTY

SUKUP MANUFACTURING CO. (Sukup) warrants to original retail purchaser that within time limits set forth, new equipment shall be free from defects in material and workmanship. A part will not be considered defective if it substantially fulfills performance specifications, such as cosmetic (appearance) issues that will not affect life of product. Should any part prove defective within the warranty period, the part will be replaced without charge F.O.B. Sukup Manufacturing Co., Sheffield, Iowa USA or Distribution Centers - Arcola, Illinois; Aurora, Nebraska; Defiance, Ohio; Jonesboro, Arkansas; Cameron, Missouri; Watertown, South Dakota. To obtain warranty, a copy of original invoice is required, see reverse side.

THE FOREGOING LIMITED WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES OF MERCHANTABILITY, FITNESS FOR PARTICULAR PURPOSE AND OF ANY OTHER TYPE, WHETHER EXPRESS OR IMPLIED. Sukup neither assumes nor authorizes anyone to assume for it any other obligation or liability in connection with said part, and will not be liable for incidental or consequential damages. **THE REMEDIES STATED HEREIN SHALL BE THE EXCLUSIVE REMEDIES AVAILABLE UNDER THIS LIMITED WARRANTY.**

Sukup reserves the right to change specifications, add improvements or discontinue manufacture of any of its equipment without notice or obligation to purchasers of its equipment. This warranty gives you specific legal rights. You may also have other rights which vary according to state or province.

WARRANTY EXCLUSIONS - Labor, transportation, or any cost related to a service call is not provided by Sukup. This Limited Warranty does not apply to damage resulting from misuse, neglect, normal wear, accident or improper installation or maintenance. **ITEMS NOT MANUFACTURED BY SUKUP ARE COVERED UNDER WARRANTIES OF THEIR RESPECTIVE MANUFACTURERS AND ARE EXCLUDED FROM COVERAGE UNDER THE SUKUP WARRANTY. SUKUP MANUFACTURING CO. MAKES NO WARRANTY, EXPRESS OR IMPLIED, OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.**

ENGINEERING - Structural design is based on information provided by the customer. Sukup Manufacturing Co. will not assume any liability for designs based off of inaccurate information. All engineering data (i.e. base plate information, reactions, etc.) will be provided upon request only after a signed purchase order has been received. Sukup Manufacturing Co. engineering department recommendations shall be verified and approved by customer's Engineer of Record before using in subsequent design and construction.

Upon taking delivery of product, purchaser (dealer and/or end user) assumes responsibility for proper storage of all materials. Proper storage includes dry, temperature and humidity controlled facilities, which eliminate the potential of moisture, including condensation, from causing white rust and/or corrosion of any sort. Warranty does not extend to defects, damage or cosmetic (appearance) issues caused by improper storage, handling or erection.

BASIC WARRANTY - All Sukup manufactured products are warranted for one year from date of purchase. Part(s) must be returned to Sukup within 30 days in event of failure.

WARRANTY CERTIFICATION - Warranty registration card should be mailed within one month of product delivery to certify warranty coverage.

UNAPPROVED PARTS OR MODIFICATION - All obligations of Sukup under this warranty are terminated if unapproved parts are used, or if equipment is modified or altered in any way not approved by Sukup.

Safety



Read manual before installing or using product. Failure to follow instructions and safety precautions in manual can result in death or serious injury. Keep manual in a safe location for future reference.

General Safety Practices



On safety decals, this symbol and the signal words Danger, Warning, Caution and Notice draw your attention to important instructions regarding safety. They indicate potential hazards and levels of intensity.



RED - DANGER indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.



ORANGE - WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



YELLOW - CAUTION indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.



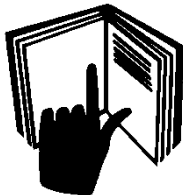
BLUE - NOTICE alerts you to practices unrelated to personal injury, such as messages related to property damage.

IMPORTANT: To prevent serious injury or death to you or your family, it is essential that safety decals are clearly visible, in good condition, and applied to the appropriate equipment.

FOLLOW MANUAL & SAFETY DECAL MESSAGES

Carefully read this manual and all safety decals on your equipment. Safety decals must be kept in good condition. Replace missing or damaged safety decals by contacting Sukup

Manufacturing Co. via mail at PO Box 677, Sheffield, Iowa USA, 50475; by phone at 641-892-4222; or by e-mail at info@sukup.com.



It is the responsibility of the owner/operator to know what specific requirements, precautions, and work hazards exist. It is also the responsibility of the owner/operator to inform anyone operating or working in the area of this equipment of hazards and safety precautions that need to be taken to avoid personal injury or death. Always keep children away from bins and vehicles with flowing grain.

Make no unauthorized modifications to machine. Modifications may endanger function and/or safety of unit. Keep unit in good working condition. Keep shields in place. Replace worn or missing shields free of charge by contacting Sukup Manufacturing Co.

GRAIN BIN SAFETY

Owners/operators are responsible for developing site-specific confined space entry procedures. OSHA's confined space entry procedures (29CFR 1910.146) can be found at www.osha.gov.

If you must enter bin for repair or maintenance:

- Use a safety harness, safety line and respirator
- Station another person outside of bin
- Avoid the center of the bin
- Wear appropriate personal protective equipment
- Keep clear of all augers and moving parts



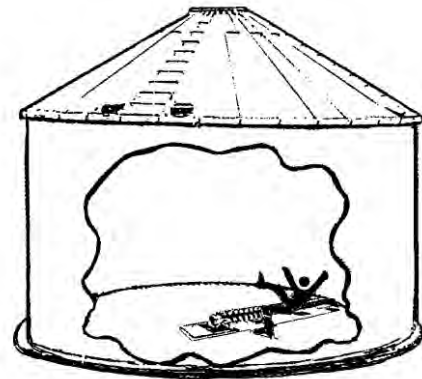
DANGER: Never enter bin unless all power is locked out and another person is present.



Rotating augers can kill or dismember!

NEVER enter bin when augers are running!

When bin is nearly empty, sweep auger will travel at an increasingly fast speed. Keep away from sweep and sump augers to avoid entanglement.



Failure to follow precautions above will result in death or serious injury.



DANGER: Flowing grain may trap and suffocate. If you enter a bin of flowing grain you can be completely submerged in grain in about 8 seconds.



Failure to heed this warning will result in death or serious injury.

Safety

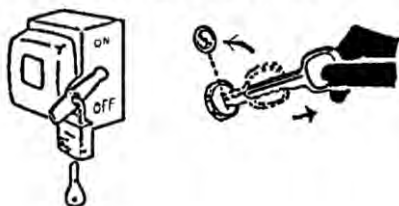
To avoid electric shock or electrocution, all equipment must be properly wired and grounded according to electrical codes. Have unit wired by qualified electrician.



Have an electrician install a main power disconnect switch capable of being locked only in OFF position.

Mark disconnect clearly as to equipment it operates. Always lock out main power disconnect switch whenever equipment is not in use.

Service Disconnect



WARNING: When servicing equipment, never enter bin unless all power is locked out and another person is present. Always LOCK OUT all power and always check with voltage meter before servicing.

Failure to do so could result in death or serious injury.

Owners/operators are responsible for developing site-specific Lockout/Tagout procedures based on equipment at their work site. See OSHA's typical minimal lockout procedures (29CFR 1910.147 App A) at www.osha.gov.



WARNING: KEEP CLEAR OF ALL MOVING PARTS.

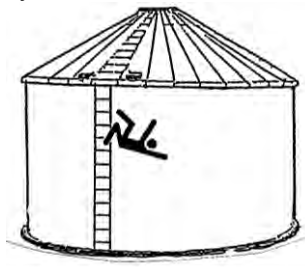
Keep people (ESPECIALLY YOUTH) away from equipment, particularly during operation.

Keep away from all moving parts. Keep all shields in place. **SHUT OFF AND LOCK OUT** all power before servicing.

Failure to follow precautions above could result in death or serious injury.



WARNING: Metal is slippery when wet. To avoid falls, never carry items if climbing on bin. Maintain secure hand and foothold if climbing on bin. Failure to do so could result in death or serious injury.



CAUTION: Metal edges are sharp. To avoid injury, wear protective clothing and handle equipment and parts with care.

Failure to do so may result in minor or moderate injury.

PERSONAL PROTECTIVE EQUIPMENT



Owners/Operators are responsible for developing site-specific personal protective equipment standards. OSHA's personal protective equipment standards (29CFR 1910.132) can be found at www.osha.gov.

EMERGENCIES – KNOW WHAT TO DO

Have emergency numbers and written directions to work site readily available in case of emergency. An area for emergency phone numbers to be recorded is provided below and at end of this manual.

Ambulance • Fire • Police: 9-1-1

Bin rescue team: _____

Emergency medical squad: _____

Address of work site: _____

Directions to work site: _____

Support Tower Safety Decals

It is essential that the following safety decals be mounted on your support tower to warn and remind of potential hazards. Decals must be mounted after erection. They must be replaced if they become damaged or unreadable.

If needed, order replacement safety decals free of charge by contacting Sukup Manufacturing Co. by mail at PO Box 677, Sheffield, Iowa 50475; by phone at 641-892-4222; or by e-mail at info@sukup.com. Please specify decal number. Use decal placement drawings on next page to determine location of decals if replacement is necessary.

Decal L0113 – WARNING: Falling from heights may cause serious injury or death.



Decal L01135 – WARNING: Platform collapse can cause serious injury or death.



NOTE: These decals must never be removed, tampered with, painted over or obscured in any way. If decal replacement becomes necessary, use locations below. Make sure location for decal is free of dirt and other substances. Remove backing from decal and place in proper position.

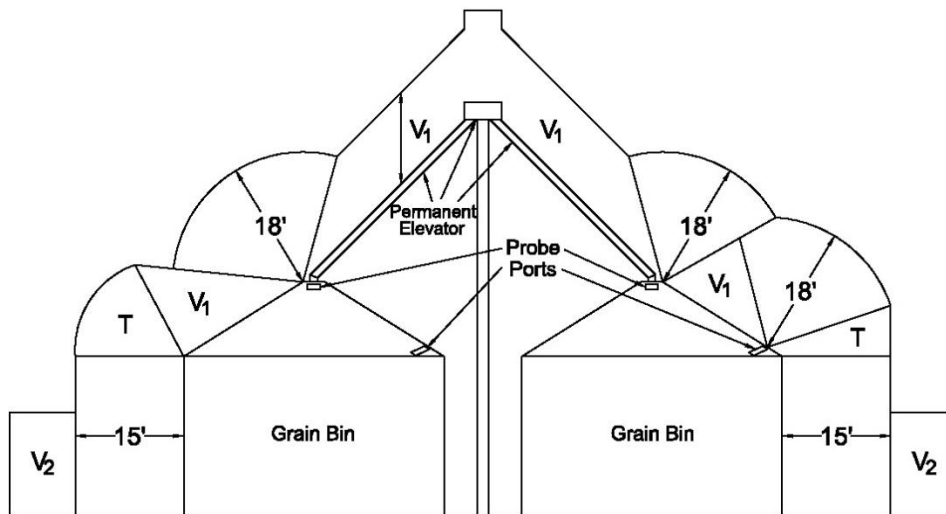


Electrical Wire Clearances

Check with your local electric utility, which may be able to provide assistance in planning a safe environment for everyone working around grain bins. State codes may vary regarding specific clearances for electrical lines around grain bins. Be certain your local county REC is in accordance with your state's regulations. **To prevent overhead safety issues, bury electrical lines.**

The American National Standards Institute (ANSI) provides clearance envelopes for Grain Bins filled by permanently installed augers, conveyors, or elevators in (ANSI) C2 2007 "National Electrical Safety Code," Rule 234, page 120.

NOTE: An electric utility company may refuse to provide electrical service to any grain bin built near an existing electric line that does not provide the clearance required by the American National Standards Institute (ANSI) and the National Electrical Safety Code.



V_1 = Vertical clearance above a building required by Rule 234C (Table 234-1)

V_2 = Vertical clearance above land required by Rule 232

T = Transition clearance

Fig. 2 – Electrical Wire Clearances

Construction Safety

On support tower construction sites, carelessness and/or error may result in serious injury or even death. Hazard control and accident prevention are dependent upon awareness, caution and proper training of personnel involved in construction. Be certain all crew members are properly trained and thoroughly familiar with all aspects of support tower construction and this manual.

Listed below are items construction crew members should be knowledgeable of to minimize risk of injury to personnel and damage to equipment. **NOTE:** Topics and items below are examples taken from a broad list of OSHA's Safety and Health Regulations for Construction. See www.osha.gov. Generally, these are common requirements/items necessary on building construction sites.

- **Personal Protective Equipment**
 - Head Protection
 - Hearing Protection
 - Eye and Face Protection
 - Steel-Toed Boots/Shoes
 - Gloves
- **Concrete Construction**
- **Tools – Hand and Power**
- **Welding and Cutting Tools**
- **Electrical Systems**
- **Ladders**
- **Scaffolds and Working Platforms**
- **Fall Protection**
- **Steel Erection**
 - Cranes
- **Motorized Equipment**
 - Trenchers
 - Forklifts
 - Skid Steers
 - Telehandlers
 - Boom Lifts
- **Cranes and Hoists**
- **Signs and Signals for Use of Motorized Equipment**

Support Tower Construction Safety Guidelines

- Read and fully understand operating procedures for your lifting equipment.
- Loads can shift in transit and may shift again in unloading. Keep hands and feet clear from beneath materials.
- Structure should be braced at all times before raising next part. Structure should be secure with temporary or permanent supports before release of lifting equipment or at end of day or work period. Erection contractor is responsible for all temporary bracing.
- All joints should be connected and all bolts in place before release.
- Hoist equipment should be kept clear of power lines.
- Power tools and cords should be kept in good repair and, where required, have a three-wire ground system. Each tool should be inspected periodically.
- Never use power tools while standing on wet ground.
- Workers should wear safety glasses and/or face shields when drilling, grinding or sawing.
- Use approved tie-offs, netting, rails and fall protection when working at potential dangerous heights.

When constructing a support tower, erectors/contractors are responsible for developing site-specific construction guidelines and procedures based on equipment, conditions and situations at their individual location. OSHA's Safety and Health Regulations for Construction (29CFR1926) can be obtained at www.osha.gov.

Fall Restraints & Arrest Systems

When working on a support tower at a height where fall hazards exist, always use a fall restraint or fall arrest system. Inspect fall restraint and arrest components before each use for wear, damage and other deterioration. Remove defective components from service according to manufacturer's instructions. Failure to heed this warning may cause serious injury or death.

A **fall restraint system** consists of a body belt or harness, lanyard and anchor. The system is arranged so that the individual is prevented from falling. Fall restraint systems should be used in accordance with the manufacturer's recommendations and instructions.

A **fall arrest system** consists of a harness, lanyard, and anchor. The system stops a fall within specified parameters. Fall arrest systems should be used in accordance with manufacturer's recommendations and instructions.

Lifelines and safety harnesses are used with both systems. A **lifeline** is a component consisting of a flexible line (rope or cable) for connection to an anchorage at one end to hang vertically (vertical lifeline), or for connection to anchorages at both ends to stretch horizontally (horizontal lifeline). Lifelines also serve as a means for connecting other components of a fall protection system. A **safety harness** has straps that wrap around an individual in a manner that will distribute fall arrest forces over thighs, pelvis, waist, chest, and shoulders with a means of attaching it to other components of a fall protection system. Follow manufacturer's instructions when using a lifeline and safety harness.



Individuals who work on a support tower at heights where fall hazards exist should be equipped with a lifeline and harness. Have at least two other workers on-site. A single worker cannot go for help and give first aid simultaneously.

Lifeline should be connected to an OSHA-approved tie-off point.

Sharp Edges & Obstacles



When working on or near a metal structure, remember that metal edges are sharp. Care must be taken when handling or working near various pieces of support tower. To avoid injuries, wear protective clothing and handle equipment and parts with care. An excellent safety practice is to keep sites clear of scrap iron and other foreign material that may get covered up by snow or tall grass. Any item or debris left near tower may interfere with safe, unobstructed movement around it.

Falls & Obstructions

Falls from towers of any height can cause injury or death. Ladders used in tower construction can become very slippery or icy in inclement weather. Maintain a secure handhold and foothold when climbing. Metal is slippery when wet. Never carry items while climbing on tower. Also, be certain no obstacles are in front of ladder.

Slippery metal, broken or loose ladder rungs and loose handholds can be very dangerous. Repair loose ladder rungs and handholds as soon as they are discovered. Follow maintenance guidelines listed at back of this manual.

Bolt Tightening

Bolt Tightening

Connections of tower sections to one another and connections of bracing used in tower sections require use of high-strength A325 (ASTM) bolts. Bolts must be pre-tensioned using “turn-of-nut” method described below. See specific tower section drawings and parts lists for bolt sizes used and locations.

Bolts must be installed in all designated holes of connections and brought to a “snug tight” condition. Snug tight is defined as the tightness that exists when plies of a joint are in firm contact. This may be attained by a few impacts of an impact wrench or the full effort of a man using an ordinary spud wrench.

Snug tightening must progress systematically from the most rigid part of the connection to the free edges. Bolts of connection must then be retightened in a similar systematic manner as needed until all bolts are simultaneously snug tight and connection is fully compacted.

After all bolts in assembly are snug tight, nuts must be tightened more. See Fig. 3 and Table 1. This additional tightening must again progress systematically from the most rigid part of the joint to its free edges. During this tightening there must be no rotation of parts not turned by wrench. Mark nut and protruding end of bolt after snug tight to aid in additional tightening and inspection.

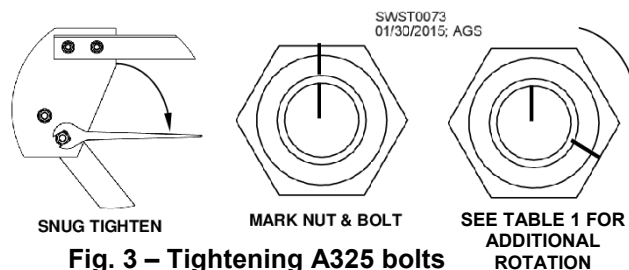


Fig. 3 – Tightening A325 bolts

Reuse of bolts that have previously been installed and tightened is not allowed.

For further information, see Research Council on Structural Connections (RCSC) Specification for Structural Joints Using High-Strength Bolts.

IMPORTANT: At no time should any bolts be substituted for those supplied by Sukup Manufacturing Co.

BOLT LENGTH	Position of Outer Faces of Bolted Parts		
	Both faces normal to bolt axis	One face normal to bolt axis, other sloped not more than 1:20 *	Both faces sloped not more than 1:20 from normal to bolt axis *
Not more than 4(D)	1/3 turn	1/2 turn	2/3 turn
More than 4(D) but not more than 8(D)	1/2 turn	2/3 turn	5/6 turn
More than 8(D) but not more than 12(D)	2/3 turn	5/6 turn	1 turn
* Beveled washer not used D = Bolt diameter			

Table 1 – Nut rotation from snug-tight condition for turn-of-nut pre-tensioning

Fig. 4 shows A325 hardware and types of connection for which they are used on support towers.

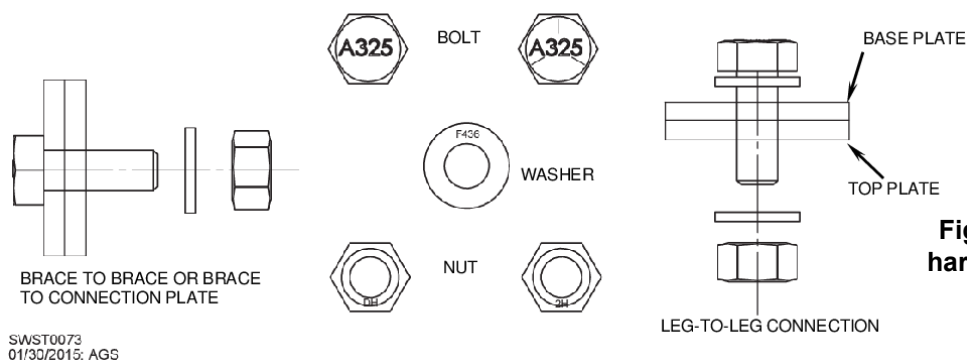


Fig. 4 – A325 hardware uses

Connections of ladders and platforms use SAE bolts. Tightening guidelines are on next page.

UNIFIED INCH BOLT AND CAP SCREW TORQUE VALUES

SAE Grade and Head Markings	1 or 2 ^b 	5  5.1  5.2 	8  8.2 
SAE Grade and Head Markings	2 	5  	8  

Size	Grade 1				Grade 2 ^b				Grade 5, 5.1, or 5.2				Grade 8 or 8.2			
	Lubricated ^a		Dry ^a		Lubricated ^a		Dry ^a		Lubricated ^a		Dry ^a		Lubricated ^a		Dry ^a	
	N.m	lb-ft	N.m	lb-ft	N.m	lb-ft	N.m	lb-ft	N.m	lb-ft	N.m	lb-ft	N.m	lb-ft	N.m	lb-ft
1/4	3.7	2.8	4.7	3.5	6	4.5	7.5	5.5	9.5	7	12	9	13.5	10	17	12.5
5/16	7.7	5.5	10	7	12	9	15	11	20	15	25	18	28	21	35	26
3/8	14	10	17	13	22	16	27	20	35	26	44	33	50	36	63	46
7/16	22	16	28	20	35	26	44	32	55	41	70	52	80	58	100	75
1/2	33	25	42	31	53	39	67	50	85	63	110	80	120	90	150	115
9/16	48	36	60	45	75	56	95	70	125	90	155	115	175	130	225	160
5/8	67	50	85	62	105	78	135	100	170	125	215	160	240	175	300	225
3/4	120	87	150	110	190	140	240	175	300	225	375	280	425	310	550	400
7/8	190	140	240	175	190	140	240	175	490	360	625	450	700	500	875	650
1	290	210	360	270	290	210	360	270	725	540	925	675	1050	750	1300	975
1-1/8	470	300	510	375	470	300	510	375	900	675	1150	850	1450	1075	1850	1350
1-1/4	570	425	725	530	570	425	725	530	1300	950	1650	1200	2050	1500	2600	1950

DO NOT use these values if a different torque value or tightening procedure is given for a specific application. Torque values listed are for general use only. Check tightness of fasteners periodically.

Shear bolts are designed to fail under pre-determined loads. Always replace shear bolts with identical grade.

Fasteners should be replaced with the same or higher grade. If higher-grade fasteners are used, these should only be tightened to the strength of the original.

Make sure fastener threads are clean and that you properly start thread engagement. This will prevent them from failing when tightening.

Tighten plastic insert or crimped steel-type lock nut to approximately 50 percent of the dry torque shown in the chart, applied to the nut, not to the bolt head. Tighten toothed or serrated-type lock nuts to the full torque value.

^a "Lubricated" means coated with a lubricant such as engine oil, or fasteners with phosphate and oil coatings. "Dry" means plain or zinc plated without any lubrication.

^b Grade 2 applies for hex cap screws (not hex bolts) up to 152 mm (6-in.) long. Grade 1 applies for hex cap screws over 152 mm (6-in.) long, and for all other types of bolts and screws of any length.

Fig. 5 & Table 2

IMPORTANT: At no time should any bolts be substituted for those supplied by Sukup Manufacturing Co.

Anchor Placement

Anchor Placement

Adjacent drawing shows anchor placement for cast-in-place anchor **plates**, depending on size of tower. If using anchor **bolts**, contact Sukup Manufacturing Co. for requirements.

When cast-in-place anchors are used, base plate on bottom of tower leg is welded to top of cast-in-place anchor. Base plates are solid (contain no holes for anchor rods) and measure either 12" square or 12-3/4" square. Base plate thickness ranges from 1" to 1-5/8". Use thickness of base plate on bottom leg of tower to determine required weld size. See Table 3. Use E70XX electrodes.

NOTICE: Base plates containing holes for anchor rods are not designed to be welded down. Attempting to do so could result in failure of plate and collapse of tower.

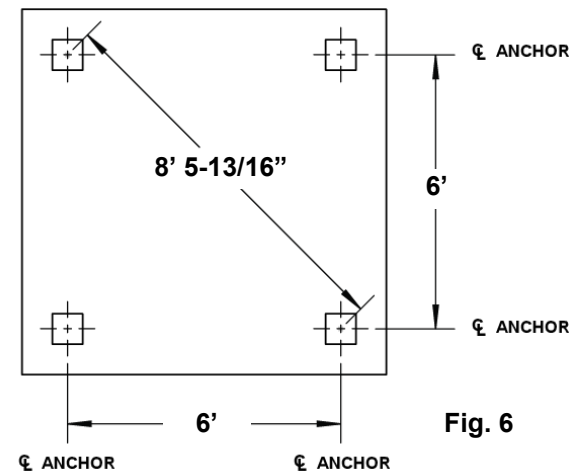


Fig. 6

Table 3 – Weld size by tower base plate thickness

DIM. (TP)	WELD SIZE (E)
1"	1/4"
1-1/4"	5/16"
1-1/2"	3/8"
1-5/8"	1/2"

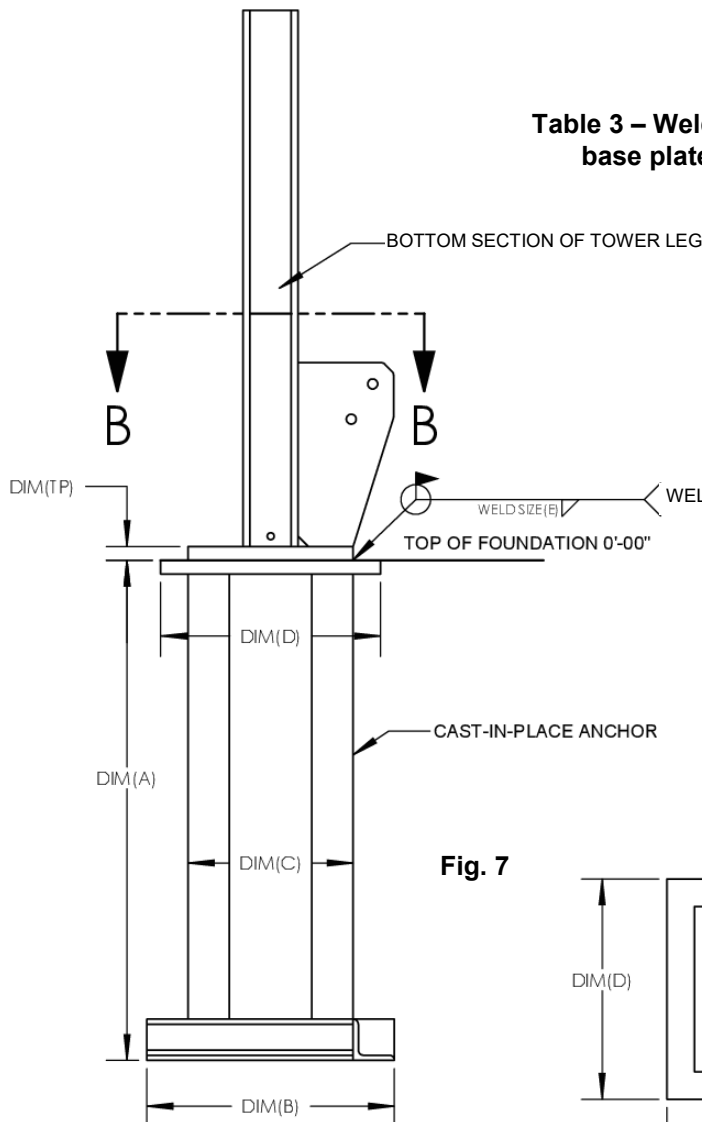
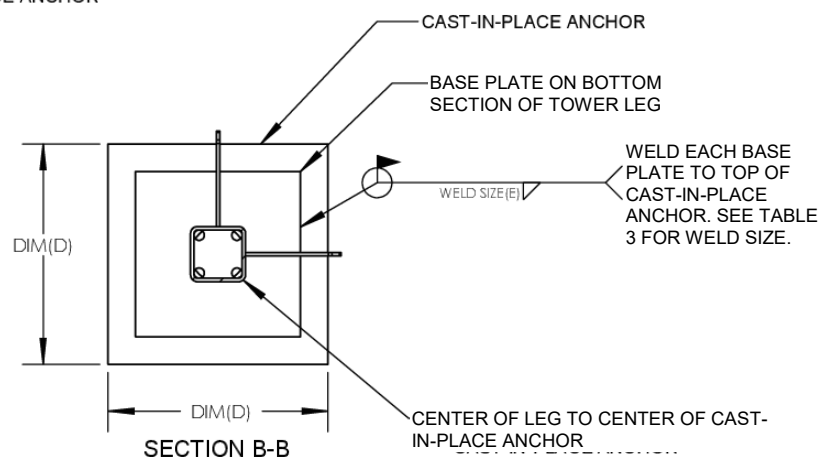


Fig. 7

ANCHOR	DIM. A	DIM. B	DIM. C	DIM. D
BT10300	36-3/8"	18"	12"	16"
BT10301	24-3/16"	17"	13"	16"
BT12300	48"	16-1/2"	16-1/2"	17-1/4"
BT12301	47-3/4"	16-1/2"	16-1/2"	17-1/4"

Table 4 – Dimensions for cast-in-place anchor



SWCLT0002
04/13/2018; JJS

Job-Specific Instructions

Guide to Parts Lists, Stacking Order

Each tower comes with a printout that contains job-specific parts lists and stacking order of sections. Images below show partial pages of lists. Be sure to read lists thoroughly before beginning assembly.

TOWER SECTIONS

SO# 508284

2/18/2015

Page 1 of 3

SECTION	QTY	ITEM	DESCRIPTION
---------	-----	------	-------------

1

48	BT12324G	SPACER,4"DIA,5/8" THICK
16	BT14191G	BRACE,HORZ,3X3X1/4",149.500"
32	BT14192G	BRACE,DIAG,4X4X1/4",128.00"
8	BT14193G	PLATE,GUSSET,5/8P,3X3 HORZ
1	BT1419H	HDWR,BOX,BT1419,TOWER LEG
4	BT1420G	LEG,20',14X14,1.5,8X8X1/2,1.25
1	L2506	MANUAL,SUPPORT TOWER,MH
16	BT12124G	SPACER,3"DIA,5/8"THICK

PAGES INCLUDE SHOP ORDER NUMBER FOR PROJECT FOLLOWED BY QUANTITIES, ID NUMBERS AND DESCRIPTIONS OF PARTS IN EACH SECTION OF TOWER.

2

16	BT14211G	BRACE,HORZ,3X3X1/4,154.250"
1	L2506	MANUAL,SUPPORT TOWER,MH
4	BT1422G	LEG,20',14X14,1.25,6X6X1/2,1.0
1	BT1421H2	HDWR,CARTON,TOWER CONNECTION
1	BT1421H	HDWR,BOX,BT1421,TOWER LEG
32	BT14212G	BRACE,DIAG,3X3X3/8,132.750"
64	BT14064G	SPACER,3"DIA,1/2"THICK
8	BT14213G	PLATE,GUSSET,1/2P,3X3 HORZ

HARDWARE CARTON FOR ATTACHING TOWER SECTION TO SECTION BELOW IT HAS AN "H2" AT END OF ITEM #.
HARDWARE BOX FOR ASSEMBLING SECTION HAS AN "H" AT END OF ITEM #.

3

1	BT1423H2	HDWR,CARTON,TOWER CONNECTION
64	BT14064G	SPACER,3"DIA,1/2"THICK

TOWER SECTIONS

SO# 508284

5/18/2018

Page 3 of 3

NOTES:

6' X 6' TOWER
TOWER HEIGHT 75'
HOT DIP GALVANIZED
SECTION 1: BT1419G
SECTION 2: BT1421
SECTION 3: BT1423
SECTION 4: BT1425
SECTION 5: BT1427
SECTION 6: BT1429

SECTION STACKING ORDER, FROM GROUND LEVEL UPWARD (FIRST SECTION BEING LOWEST)

Job-Specific Instructions

Stacking Order

Fig. 8 and Table 5 show stacking order by tower height. See previous page for locating tower section numbers.

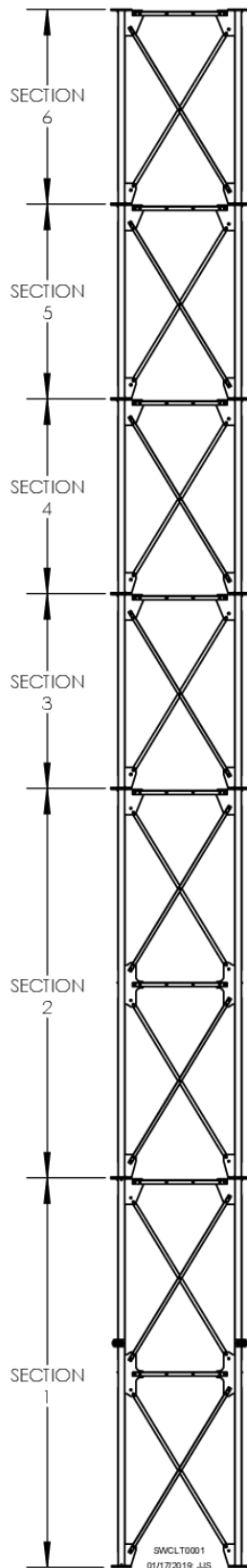


Fig. 8 & Table 5 – Stacking order by tower height

TOWER HEIGHT	SECTION 1	SECTION 2	SECTION 3	SECTION 4	SECTION 5	SECTION 6
40'	20'	10'	10'			
41'	20'	10'	6'	5'		
42'	20'	10'	6'	6'		
43'	20'	10'	7'	6'		
44'	20'	10'	7'	7'		
45'	20'	10'	5'	10'		
46'	20'	10'	6'	10'		
47'	20'	10'	7'	10'		
48'	20'	10'	6'	6'	6'	
49'	20'	10'	7'	6'	6'	
50'	20'	20'	10'			
51'	20'	20'	6'	5'		
52'	20'	20'	6'	6'		
53'	20'	20'	7'	6'		
54'	20'	20'	7'	7'		
55'	20'	20'	5'	10'		
56'	20'	20'	6'	10'		
57'	20'	20'	7'	10'		
58'	20'	20'	6'	6'	6'	
59'	20'	20'	7'	6'	6'	
60'	20'	20'	10'	10'		
61'	20'	20'	10'	6'	5'	
62'	20'	20'	10'	6'	6'	
63'	20'	20'	10'	7'	6'	
64'	20'	20'	10'	7'	7'	
65'	20'	20'	10'	5'	10'	
66'	20'	20'	10'	6'	10'	
67'	20'	20'	10'	7'	10'	
68'	20'	20'	10'	6'	6'	6'
69'	20'	20'	10'	7'	6'	6'
70'	20'	20'	20'	10'		
71'	20'	20'	20'	6'	5'	
72'	20'	20'	20'	6'	6'	
73'	20'	20'	20'	7'	6'	
74'	20'	20'	20'	7'	7'	
75'	20'	20'	20'	5'	10'	

Component Identification

Component Identification

See Fig. 9 for identification of components used in support towers.

NOTE: Base, Top and Connection plates are welded to legs at factory.

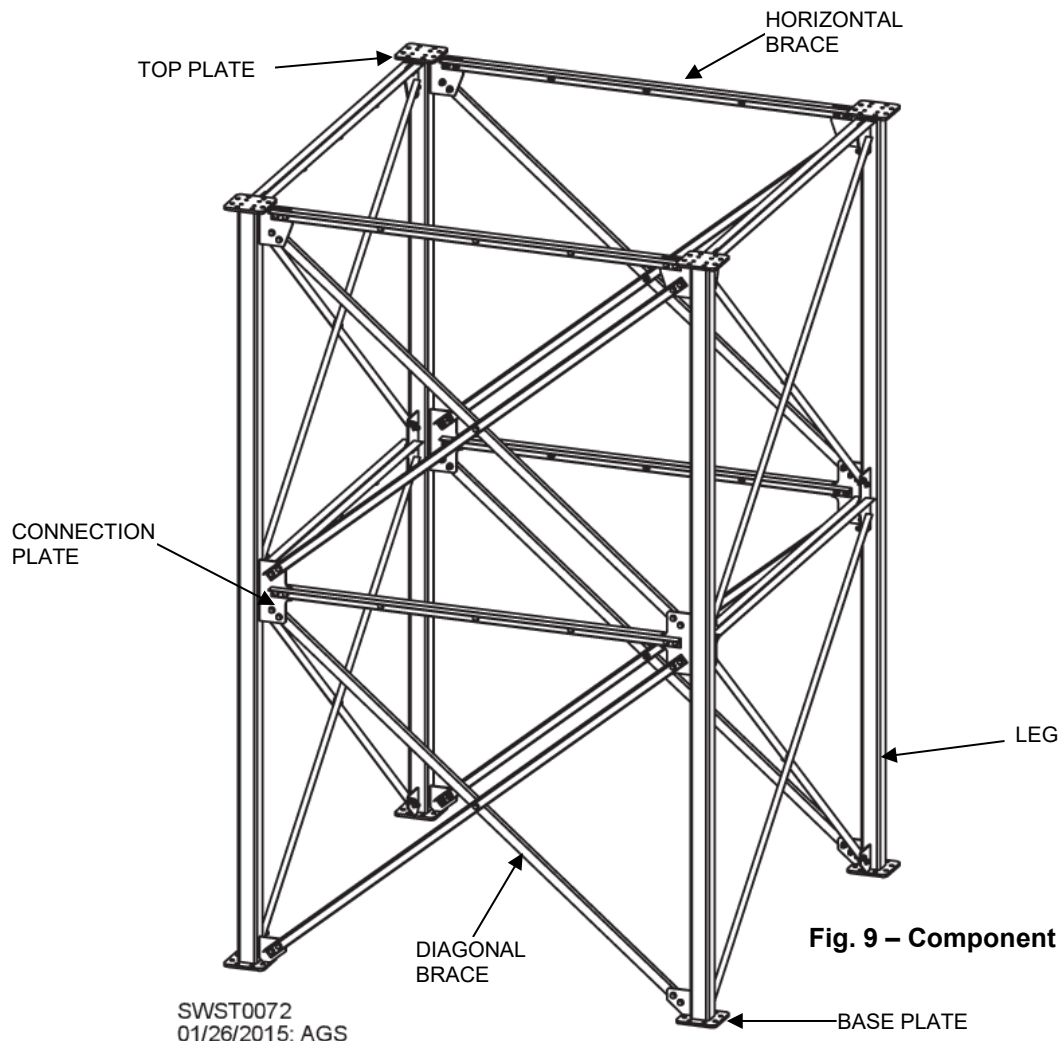


Fig. 9 – Component identification

Erection Steps

Following are recommended steps to take in erecting support tower. **NOTE:** Contractor is responsible for means, methods and safety of assembly.

- Build tower sections. See drawings provided specifically for your tower.
- Attach brackets and supports.
- Stack tower sections. See job-specific instructions for stacking order. **NOTE:** Tower is commonly built as conveyor is erected.
- Attach top platform.
- Attach rest platforms, ladders and fall protection equipment.

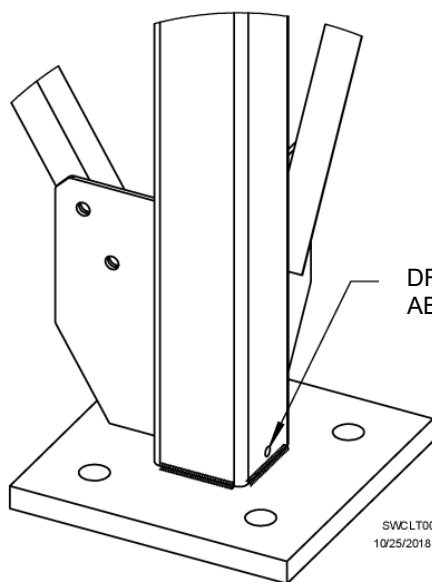
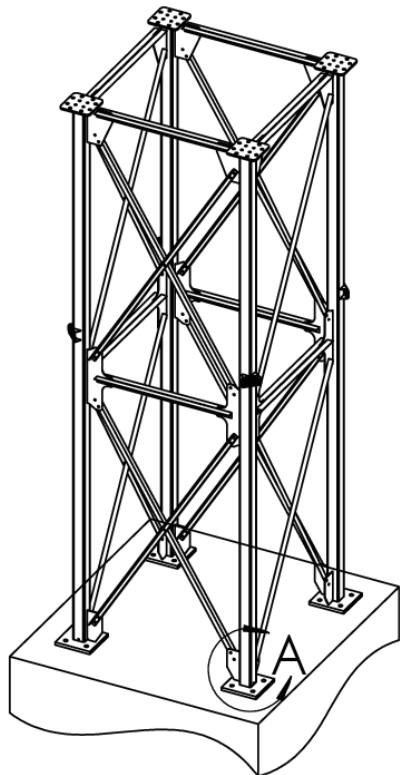


WARNING: Do not station a crew member in a position where he or she could be struck or crushed by a section of tower or platform that is being lowered into place by crane. Wind can blow lifted materials, potentially crushing, striking or pinning a person. Failure to heed this warning could result in death or serious injury.

General Instructions

Drainage Holes

A rainwater drainage hole is provided at bottom of each base section of tower leg. If not present, drill a 1/2" diameter hole in each leg just above base weld as shown in Fig. 10.



IF NOT ALREADY PRESENT,
DRILL A 1/2" HOLE IMMEDIATELY
ABOVE WELD AT BASE OF EACH
LEG TO PROVIDE FOR
RAINWATER DRAINAGE.

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Fig. 10 – Drilling drainage holes

General Instructions

Internal Cross-bracing



WARNING: Support tower must have internal cross-bracing at top of tower and at intervals of no more than 20 feet for entire length of tower. Cross-bracing must be installed as tower is erected. Failure to heed this warning could result in collapse of tower causing death or serious injury.

IMPORTANT: If a platform interferes with installation of bracing at top of tower, install at first connection point below platform.

DISCLAIMER: It shall be the responsibility of the erector to provide and install adequate cross-bracing. Adequate cross-bracing should be determined by a qualified structural engineer.

If cross-bracing package is purchased from Sukup Manufacturing Co., use collar, internal braces and tieback brackets to provide lateral cross-bracing of support tower around conveyor. See Fig. 11 and Table 6. Attach tower tieback brackets (BT10026) to corner plates as shown in Fig. 11. Attach internal braces to tieback brackets. Place collar halves around conveyor and secure with splice plates and 1/2" hardware as shown. Trim length of each internal brace to fit. Weld internal braces to collar.

See Table 6 for kit to use depending on conveyor tube diameter.

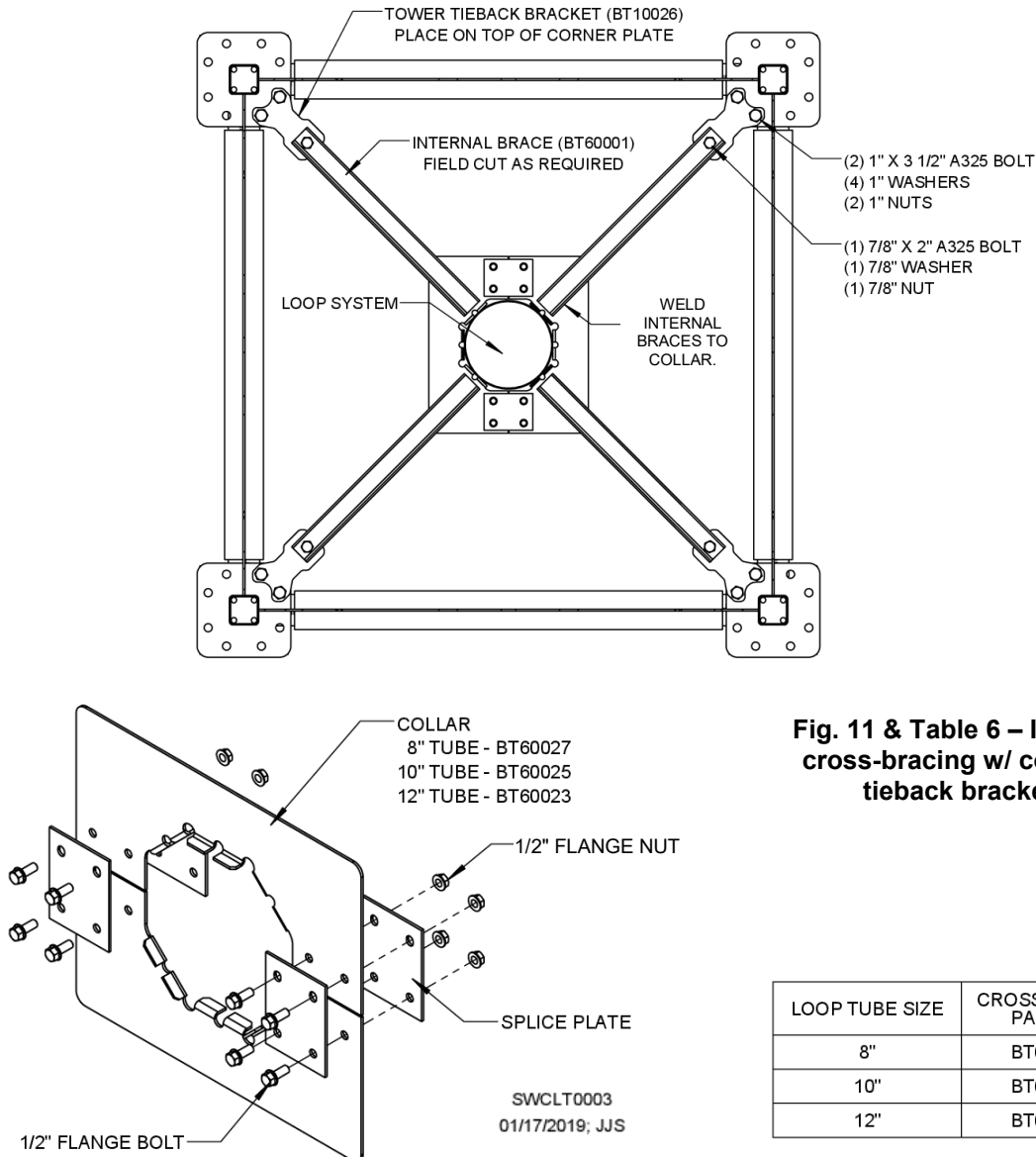


Fig. 11 & Table 6 – Internal cross-bracing w/ collar & tieback bracket

LOOP TUBE SIZE	CROSS-BRACING PACKAGE
8"	BT60028G
10"	BT60029G
12"	BT60020G

General Instructions

Assembling Top Platform (BT5143)

Assemble top platform as shown in Fig. 12 by first removing shipping channels and then bolting together halves of platform. Attach uprights and guardrails as shown.

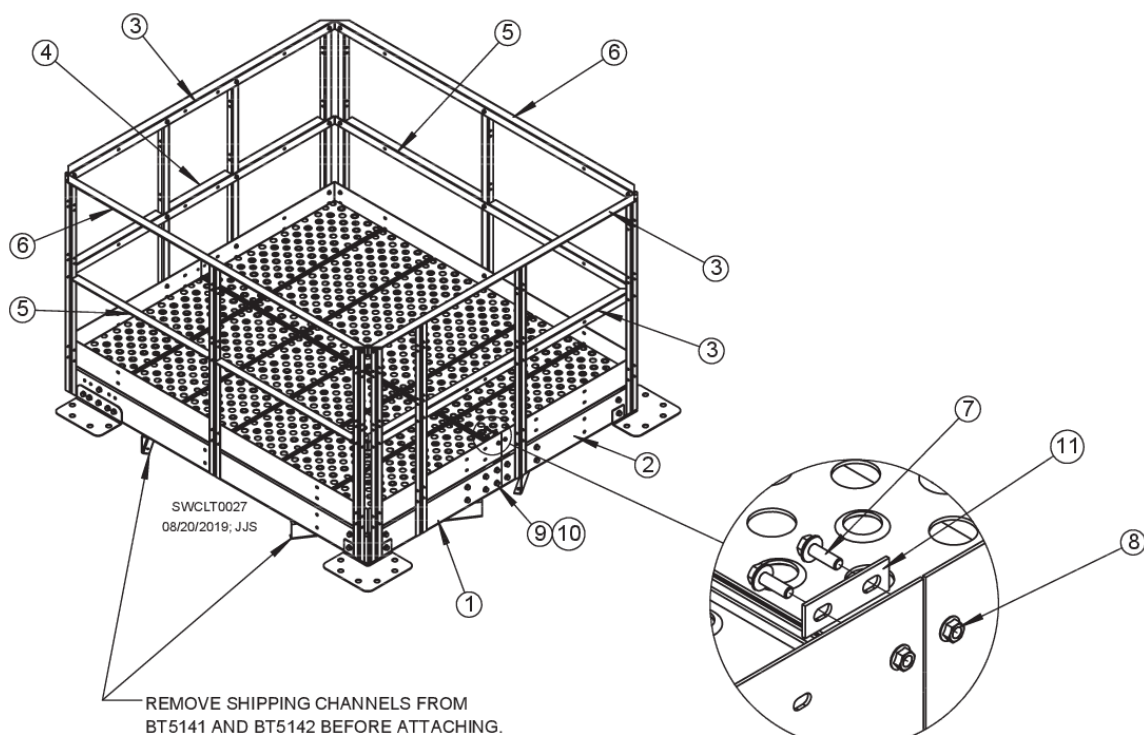
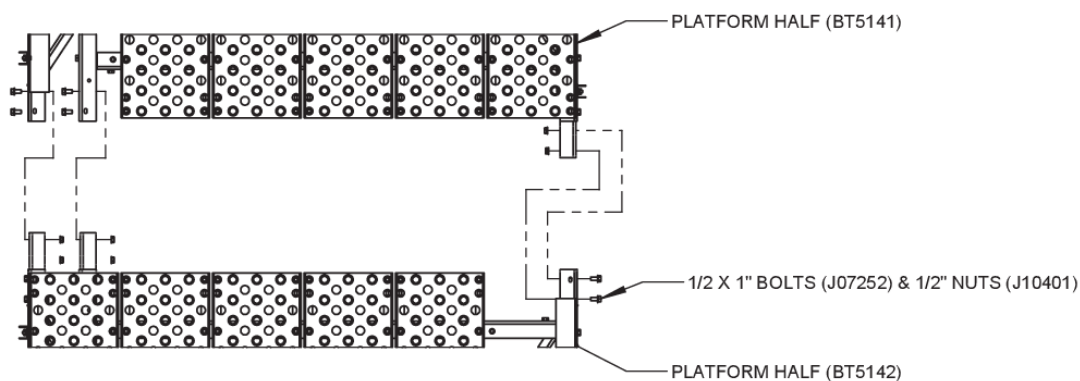


Fig. 12 & Table 7 – Assembling top platform



ITEM #	DESCRIPTION	PART #	QTY.
1	PLATFORM, HALF, TOP, 35.9X80.6, RT	BT5141	1
2	PLATFORM, HALF, TOP, 35.9X80.6, LT	BT5142	1
3	HANDRAIL, TOP/MID, 71.250, 5/16B	BT51430	3
4	HANDRAIL, MID, 71.250, 5/16B	BT51431	1
5	HANDRAIL, MID, 80.125, 5/16B	BT51432	2
6	HANDRAIL, TOP, 80.125, 5/16B	BT51433	2
7	SCREW, 5/16-18, 1.00, PLT, G5, HHWZ	J0537	32
8	NUT, WHIZ, 5/16-18	J1110	32
9	SCREW, 1/2-13, PLT, GR5, HHWZ	J07252	14
10	NUT, 12-13, PLT, GR5, FLANGE	J10401	14
11	SPLICE PLATE, TOEKICK, PLTFRM	BT55008	1

General Instructions

Installing Top Platform (BT5143)

Top platform mounts to top of tower using hardware provided in package BT5143H2. **NOTE:** Remove shipping channel (BT51001) from bottom of factory-assembled platform before mounting to tower.

See Details A and B of Fig. 13 to connect top platform to top of tower. Note orientation of platform relative to conveyor. Cut handrail as shown if it interferes with conveyor. Apply a ring of caulk as shown and connect each corner of platform to a leg using 1 x 2-1/2" bolts (J09097), 1" washers (J11322) and 1" nuts (J10602). Back legs (See Detail A) each attach with six bolts. Front legs (Detail B) attach with two.

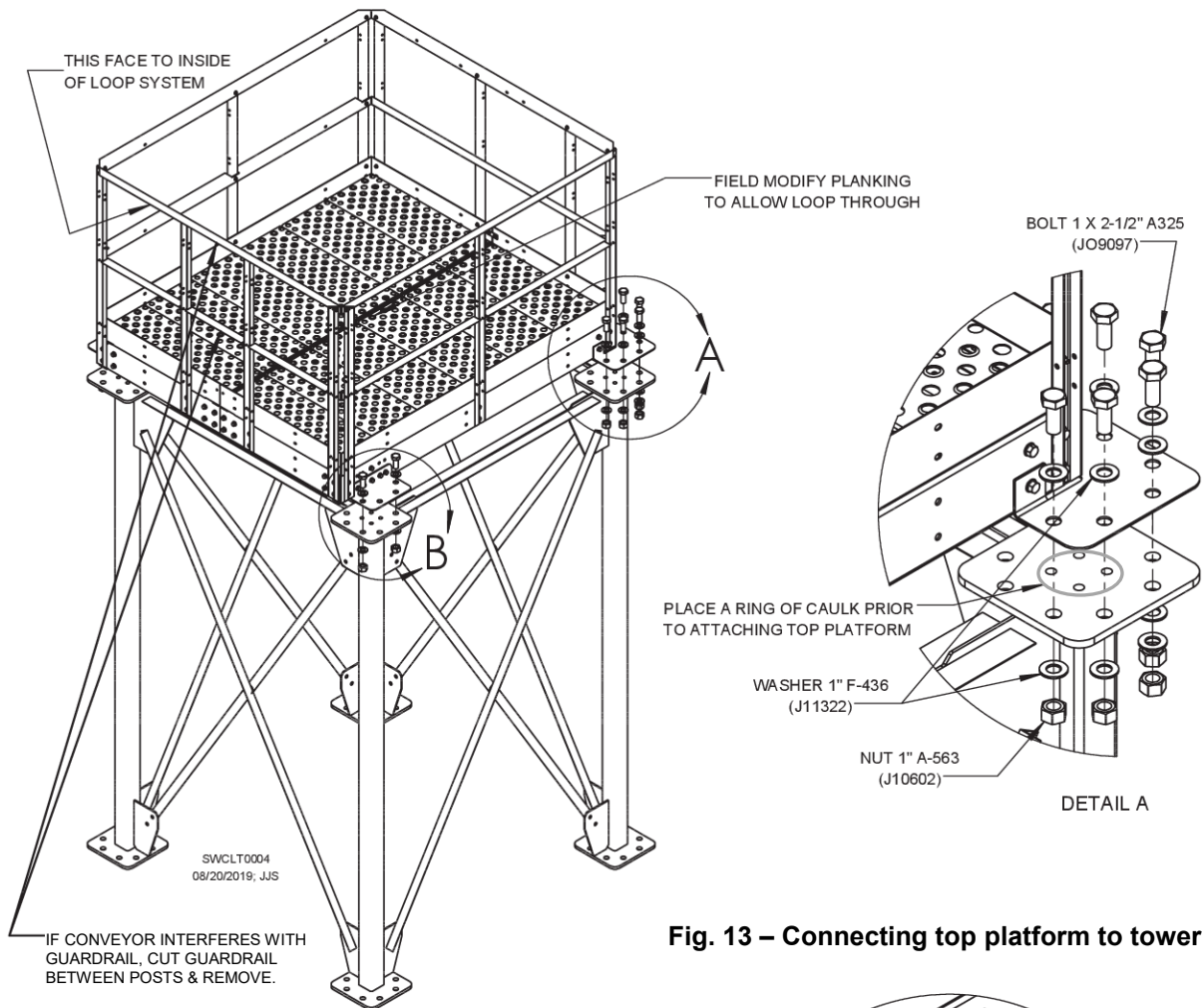
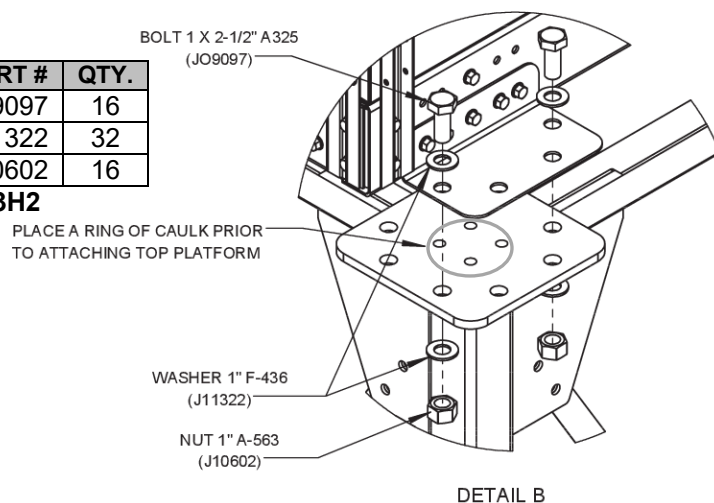


Fig. 13 – Connecting top platform to tower

ITEM #	DESCRIPTION	PART #	QTY.
1	BOLT, 1-8, 2.50, A325, STRUC	J09097	16
2	WASHER, FLAT, 1", ASTM F436	J11322	32
3	NUT, 1-8, A563, GRADE DH	J10602	16

Table 8 – Hardware package BT5143H2

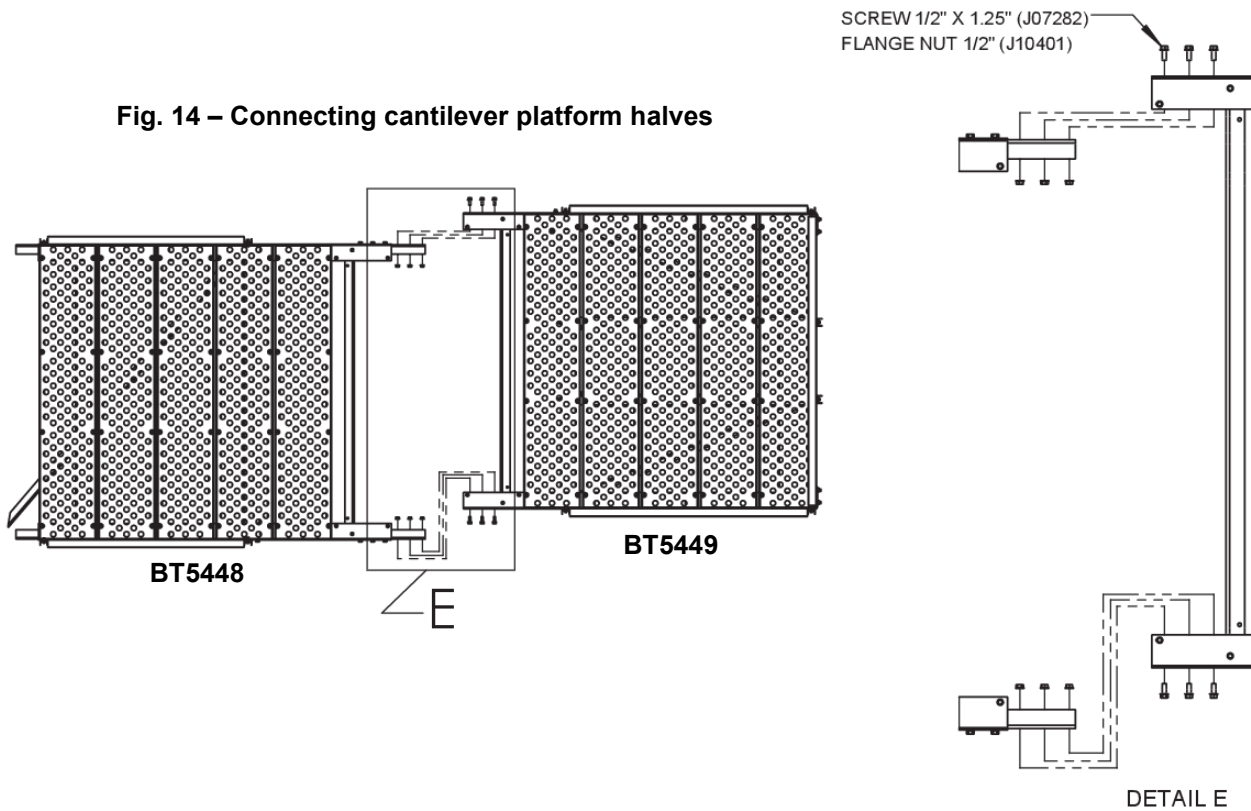


General Instructions

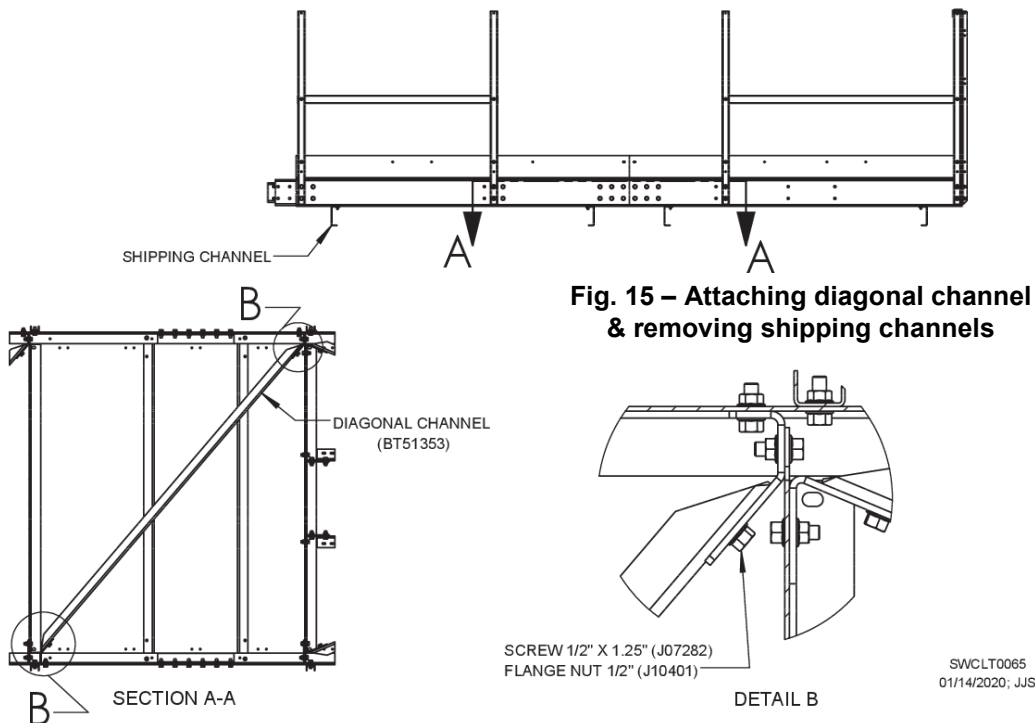
Connecting Cantilever Platform Halves

Connect platform halves (BT5448 & BT5449) as shown in Fig. 14 using hardware provided. **NOTE:** Some planks are hidden to show connection points.

Fig. 14 – Connecting cantilever platform halves



Attach diagonal channel (BT51353) using 1/2" hardware provided. Remove shipping channels before attaching to top platform and tower. See Fig. 15.



General Instructions

Attaching Guardrails to Cantilever Platform

Use 5/16" hardware provided to attach toe kick splices and guardrails. See Fig. 16. **NOTE:** Before attaching top rail (BT51559), remove outside hardware from end top rail and reuse to attach side and end top rails.

Before attaching middle rails (BT51350), remove hardware from factory-attached mid rails and reuse to attach BT51350 middle rails and factory-attached rails to uprights. See Detail A.

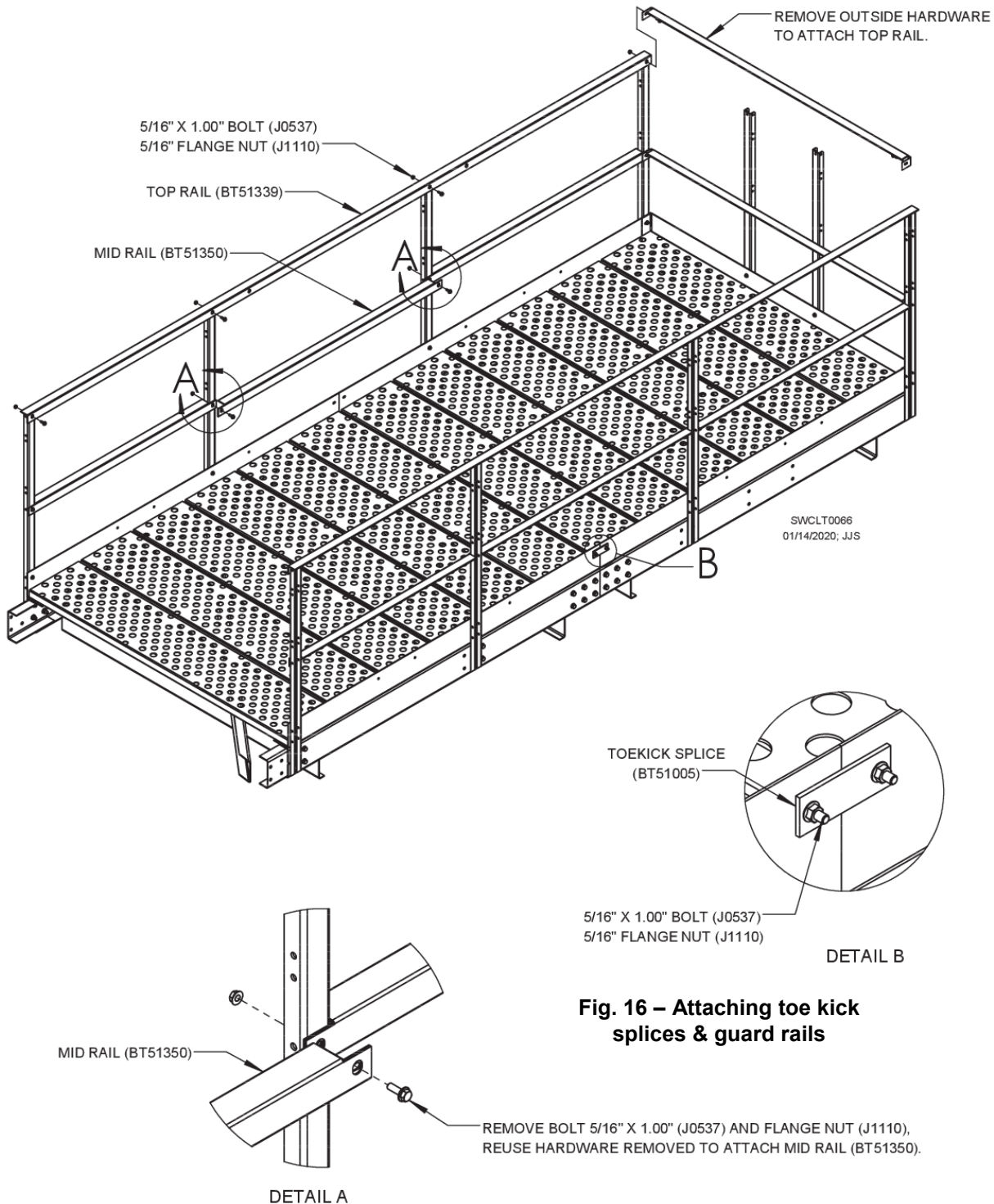


Fig. 16 – Attaching toe kick splices & guard rails

General Instructions

Attaching Cantilever Platform (BT5459) to Top Platform (BT5143)

Remove Items 1-8 from top platform (BT5143) before attaching cantilever platform (BT5459). See Fig. 17 and Table 9.

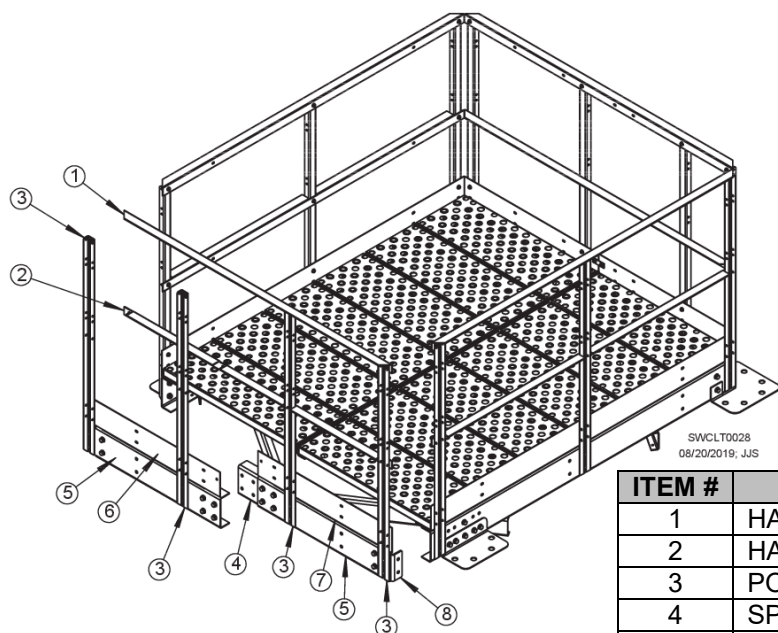


Fig. 17 & Table 9 – Preparing top platform (BT5143) for connection of cantilever platform (BT5459)

ITEM #	DESCRIPTION	PART #	QTY.
1	HANDRAIL, TOP/MID, 71.250, 5/16B	BT51430	1
2	HANDRAIL, MID, 71.250, 5/16B	BT51431	1
3	POST, GRDRL, 8GA, 1/2B, 49.563	BT51249	4
4	SPLICE, CHANNEL, 1/2B, 10.750L	BT51419	1
5	CHNL, MAIN, 7X2.5, 8GA, 35.208	BT51411	2
6	TOEKICK, 12GA, 6X3.108, 35.656, RT	BT51415	1
7	TOEKICK, 12GA, 6X3.108, 35.656, LT	BT51401	1
8	BRKT, CNR, 5.250X2.50, 1/4T, 1/2B	BT51413	2

Working on ground, connect platform sections as shown in Fig. 18 using 1/2 x 1-1/2" bolts (J07282) and 1/2" nuts (J10401) from hardware package BT5137H.

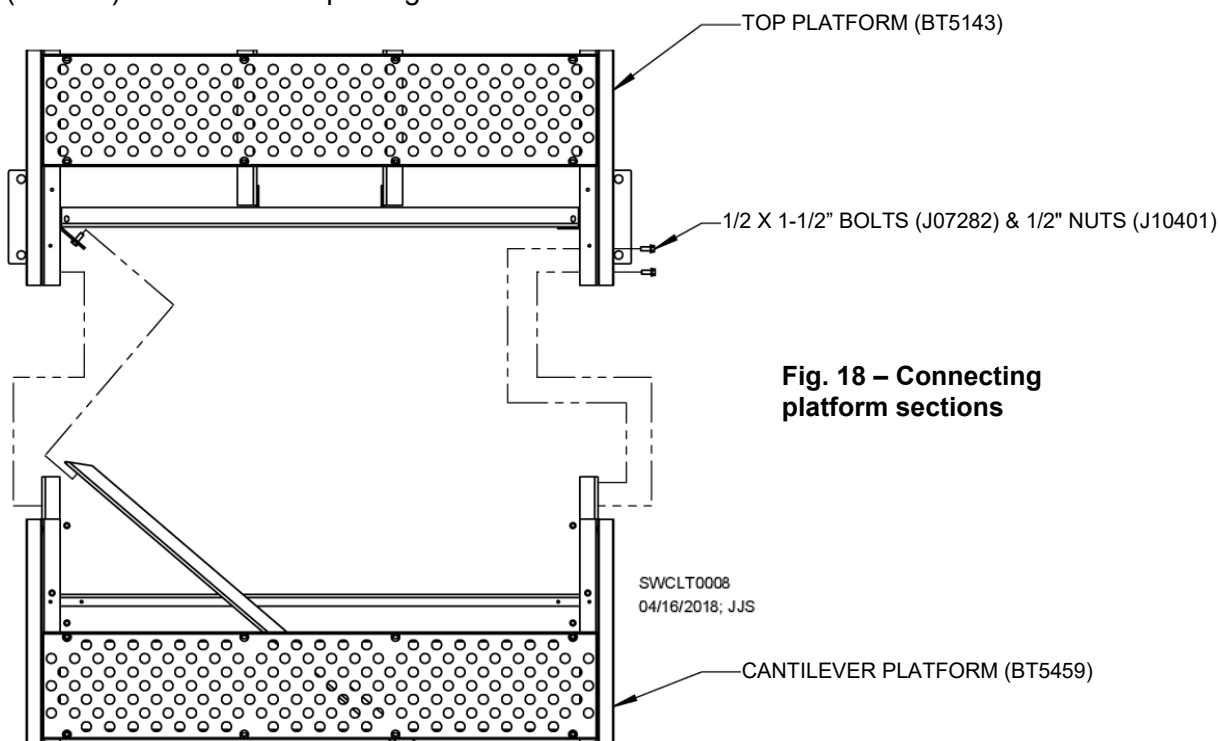


Fig. 18 – Connecting platform sections

General Instructions

Use 5/16 x 1" bolt (J0537) and 5/16" nut (J1110) to attach BT51005 brackets connecting top rails of platform sections. See Fig. 19.

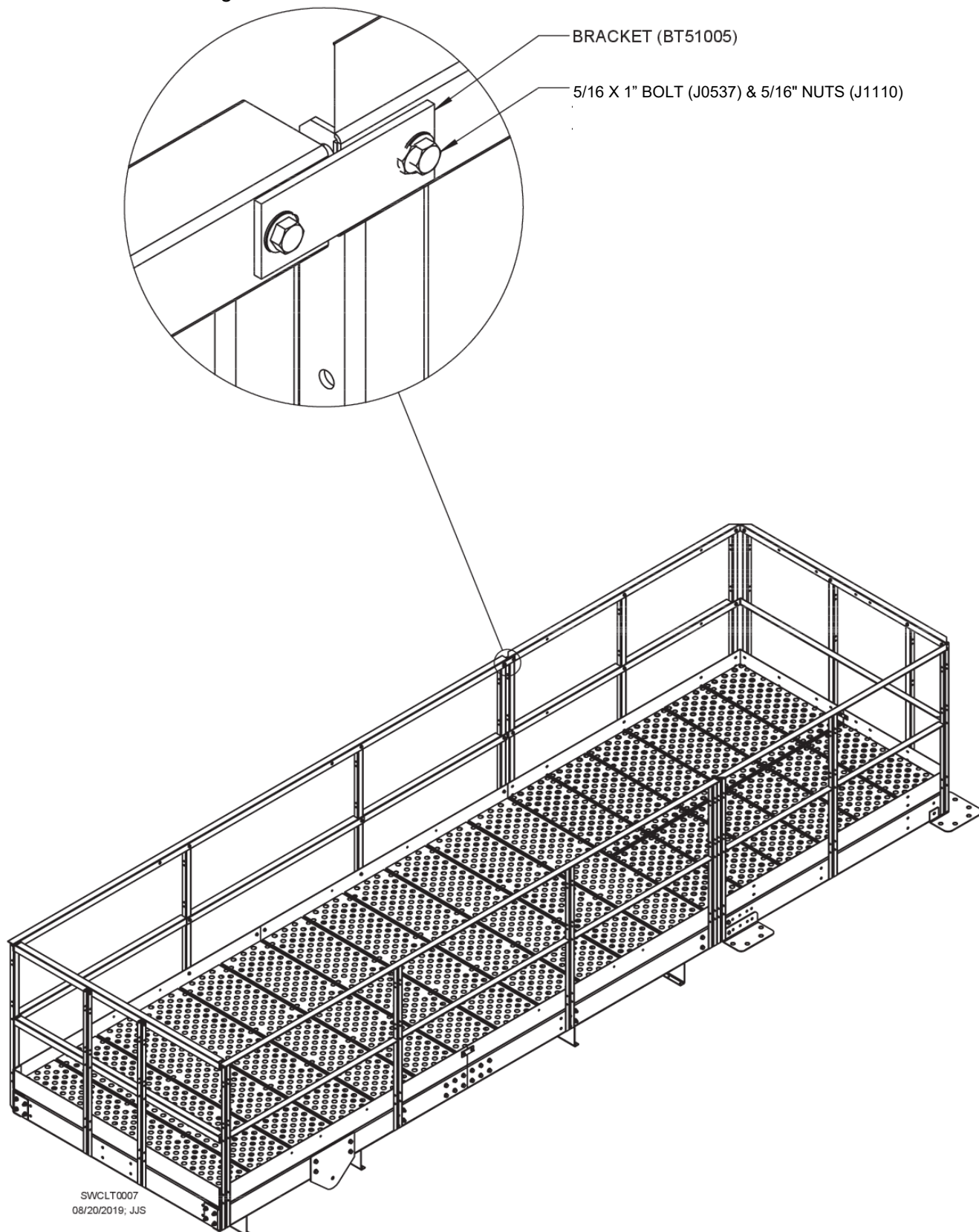
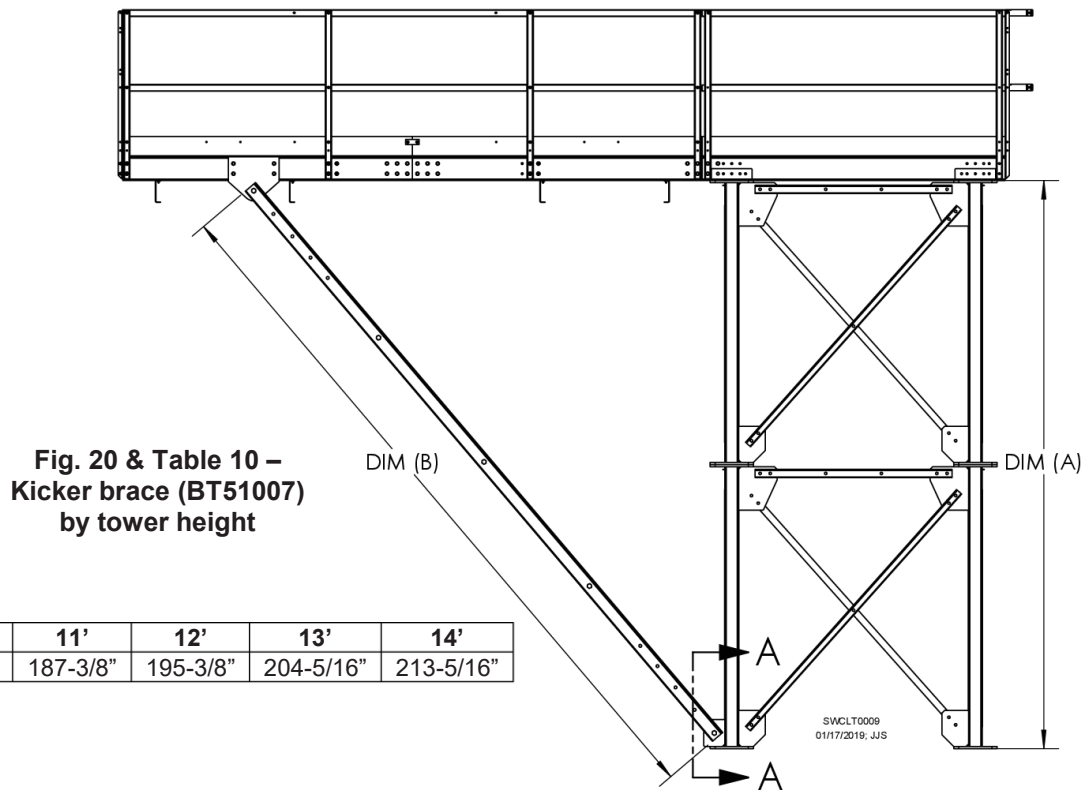


Fig. 19 – Splicing handrails

General Instructions

Before lifting assembled platform into place, determine length of kicker brace. See Fig. 20 and Table 10.



Cut kicker angles as shown in Fig. 21 unless Dim. B is full length of 213-5/16".

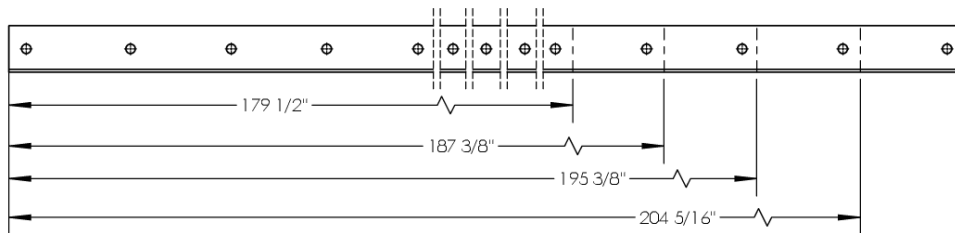


Fig. 21 – Cutting kicker angles

Fig. 22 shows location of kicker attachment tab (BT51008) for 4" square leg. Weld to leg and base plate.

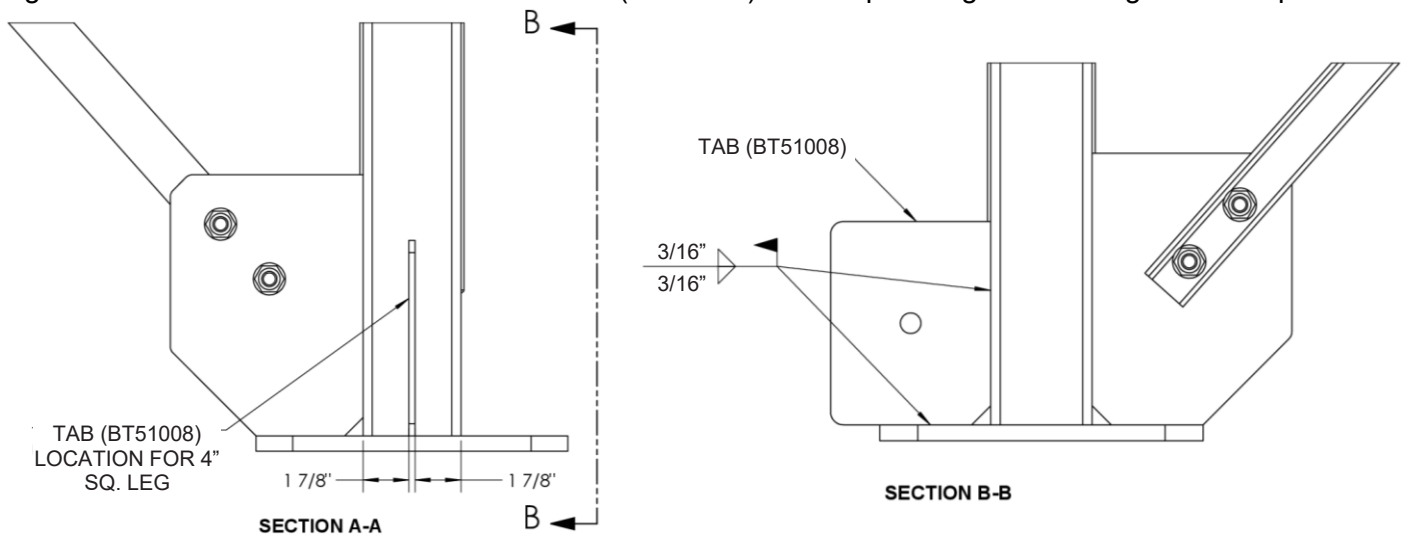


Fig. 22 – Kicker tab location & weld specs

General Instructions

Fig. 23 shows hardware used to assemble kicker.



WARNING: Platform must be supported by crane until platform attachment to top of tower is complete and kicker attachment to tower and platform is complete. Failure to heed this warning could result in collapse of platform causing death or serious injury.

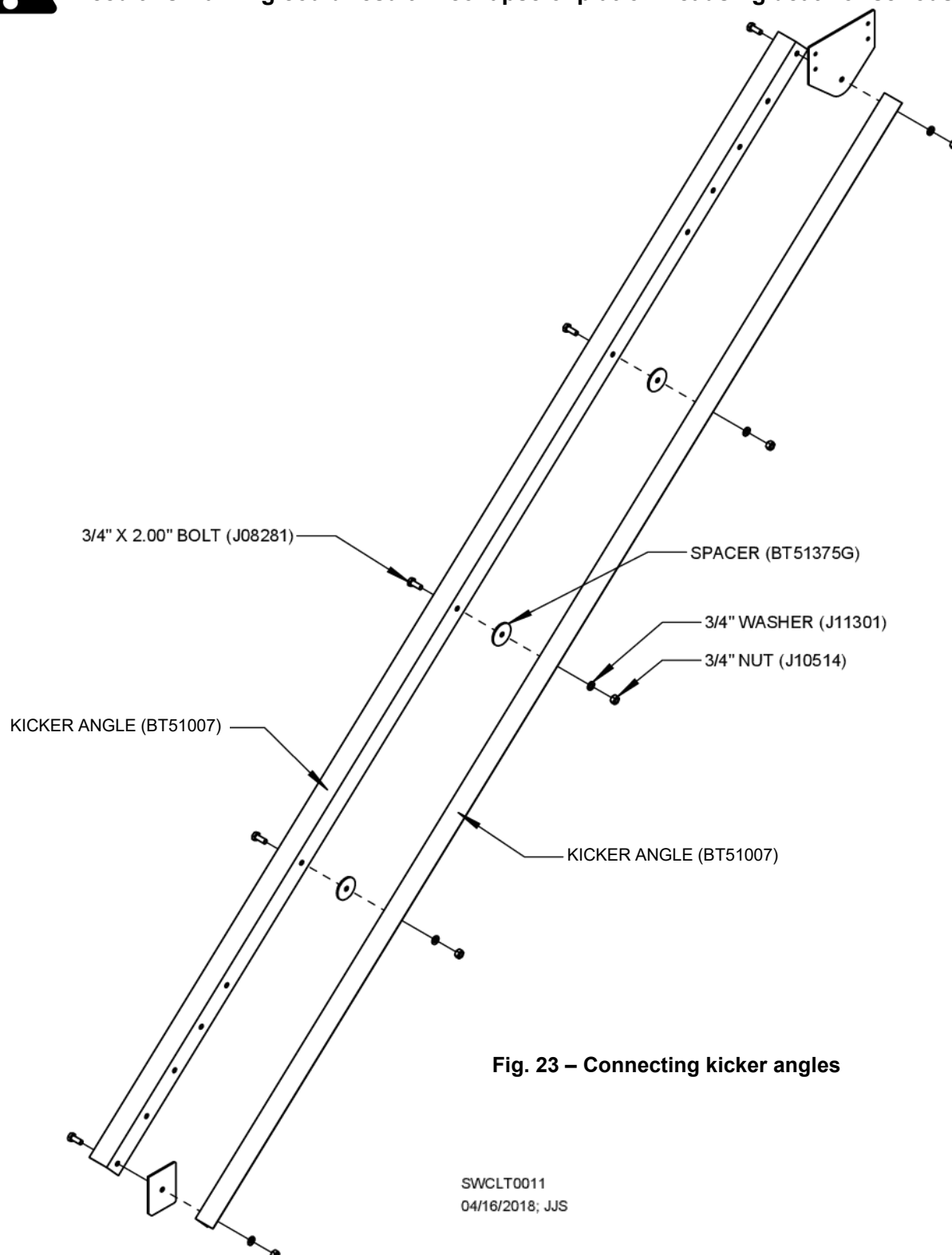


Fig. 23 – Connecting kicker angles

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General Instructions

Access Platform (BTL0053 & BTL0054) Positions

Access platforms attach to top platform (BT5143) as shown in Fig. 24 or 25. On larger conveyors (10" & 12"), mount access platform on motor side for additional service area. Fig. 24 shows left access platform (BTL0054). Fig. 25 shows right access platform (BTL0053).

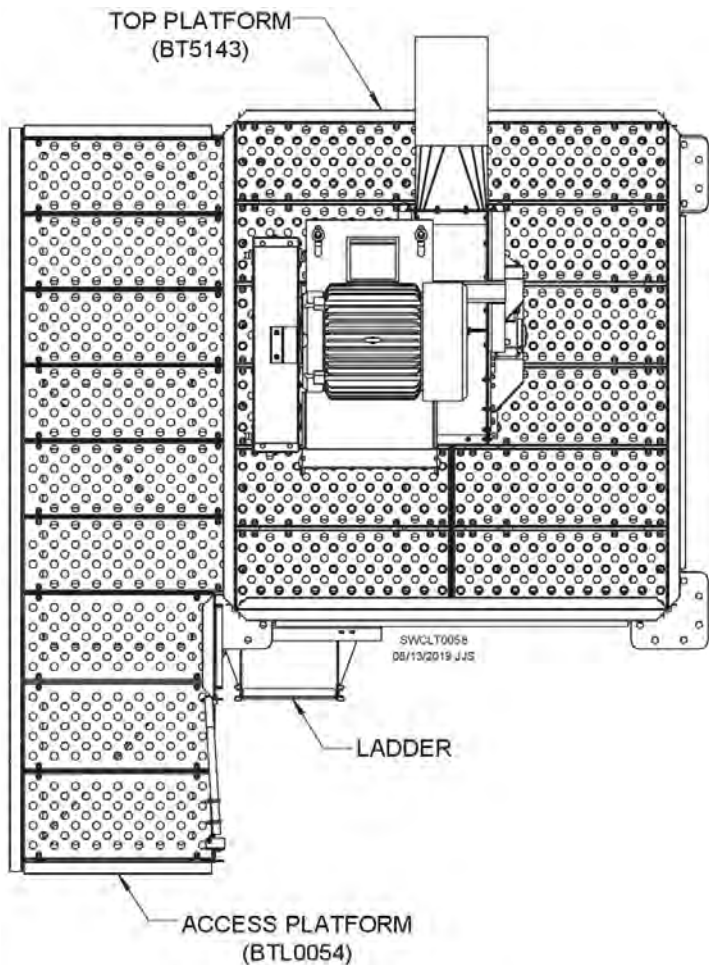


Fig. 24 – Left access platform

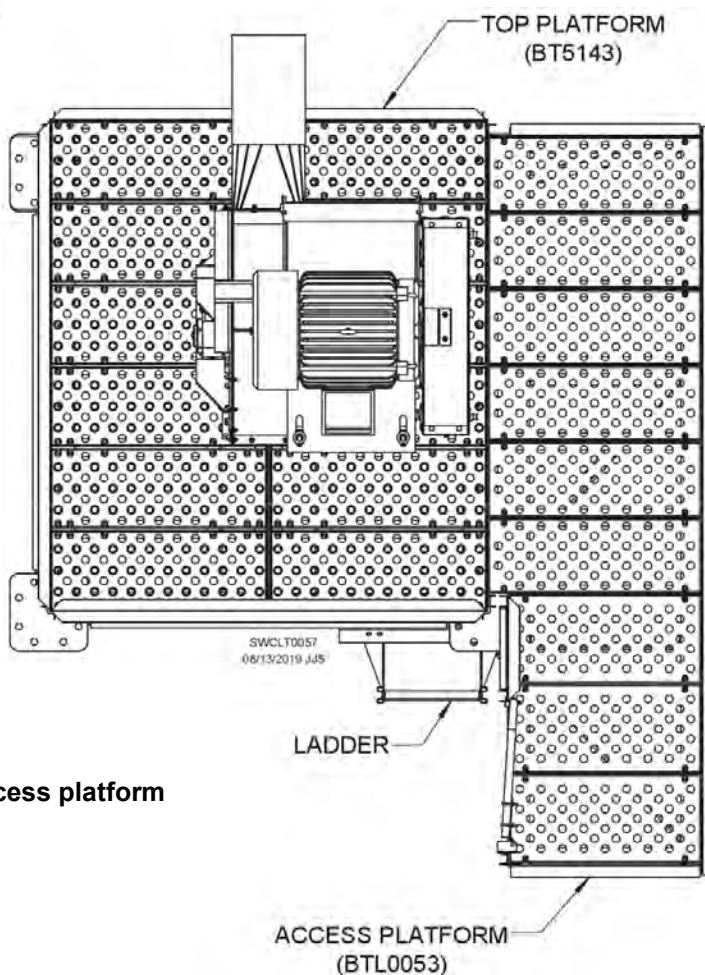


Fig. 25 – Right access platform

General Instructions

Remove guard rails and post from side of top platform where access platform will be attached. See Fig. 26. Cut toe kick to match height of access platform.

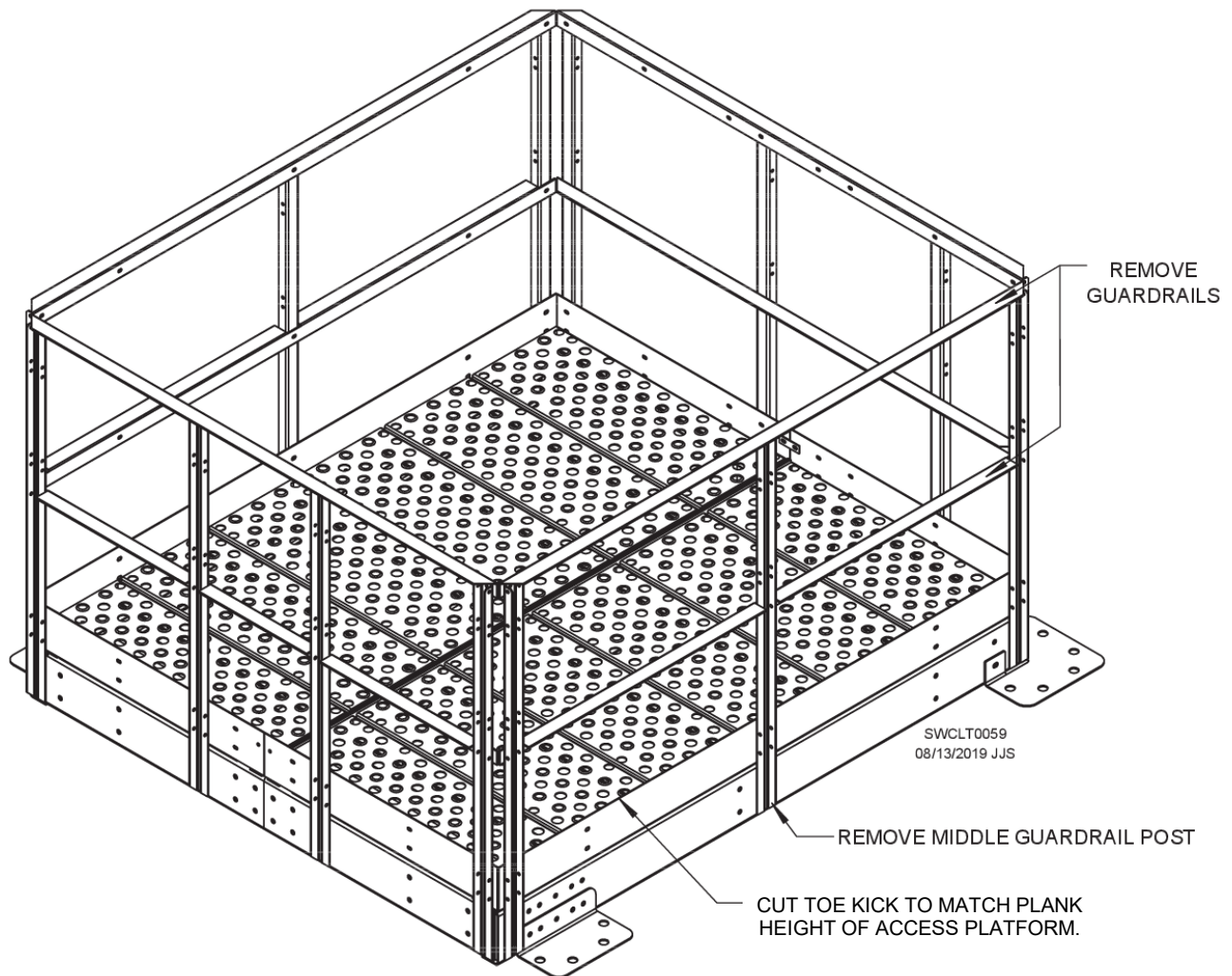


Fig. 26 – Right access platform

Attaching Access Platform to Top Platform

Use 1" hardware found in BTL0053H/BTL0054H package to attach access platform to top platform mounting bracket. See Fig. 27.

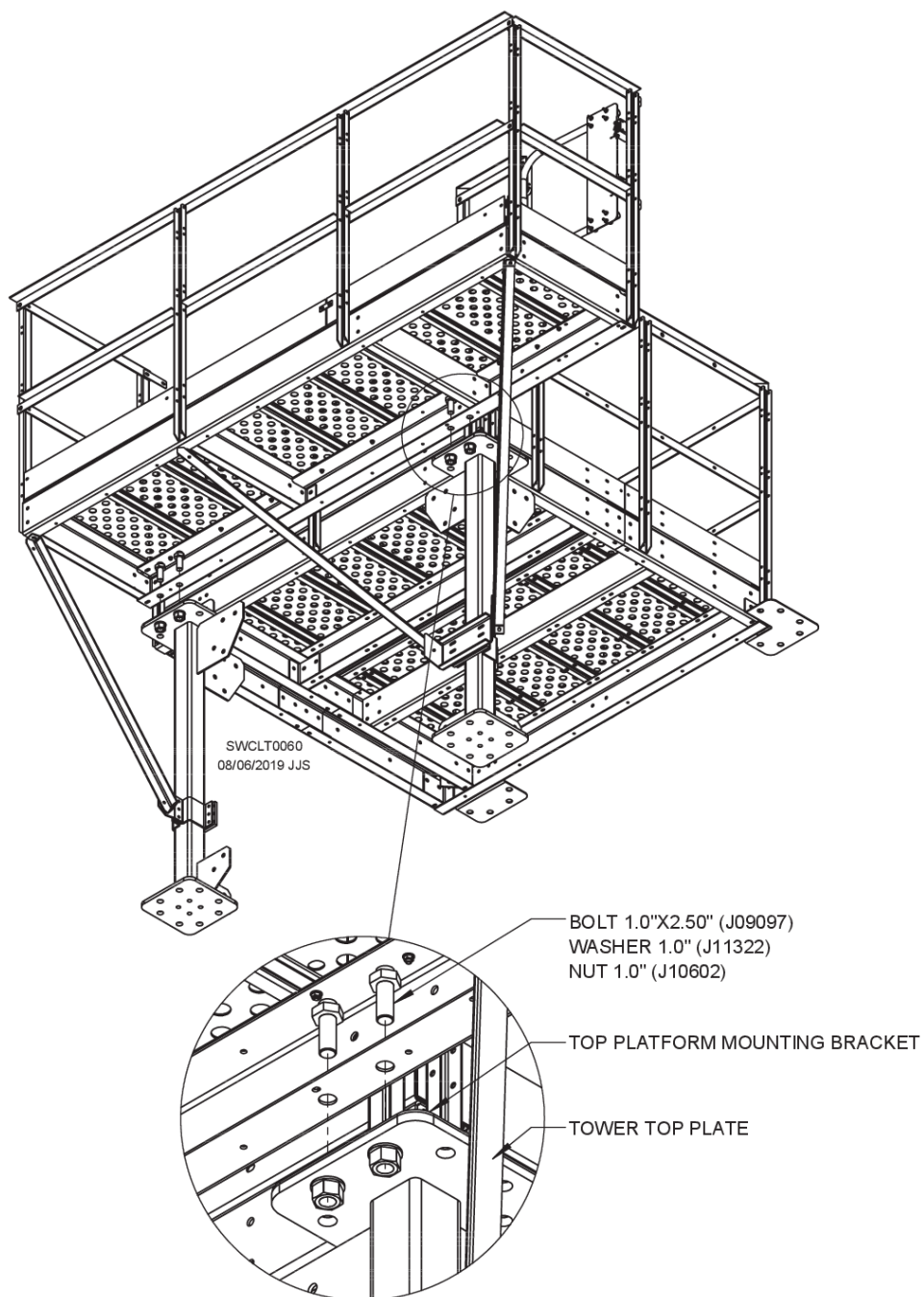


Fig. 27 – Attaching access platform

General Instructions

Bolt kickers (BTL00544 & BTL00037) to underside of platform as shown in Detail C. Bolt other end of kicker BTL00544 to kicker plate BTL00540 as shown in Detail B of Fig. 28. Bolt other end of each kicker BTL0037 to kicker plate BTL0038 as shown in Detail A.

Clamp kicker plate to leg as shown in Details A & B. Use spacers (BTL0039) as shown.

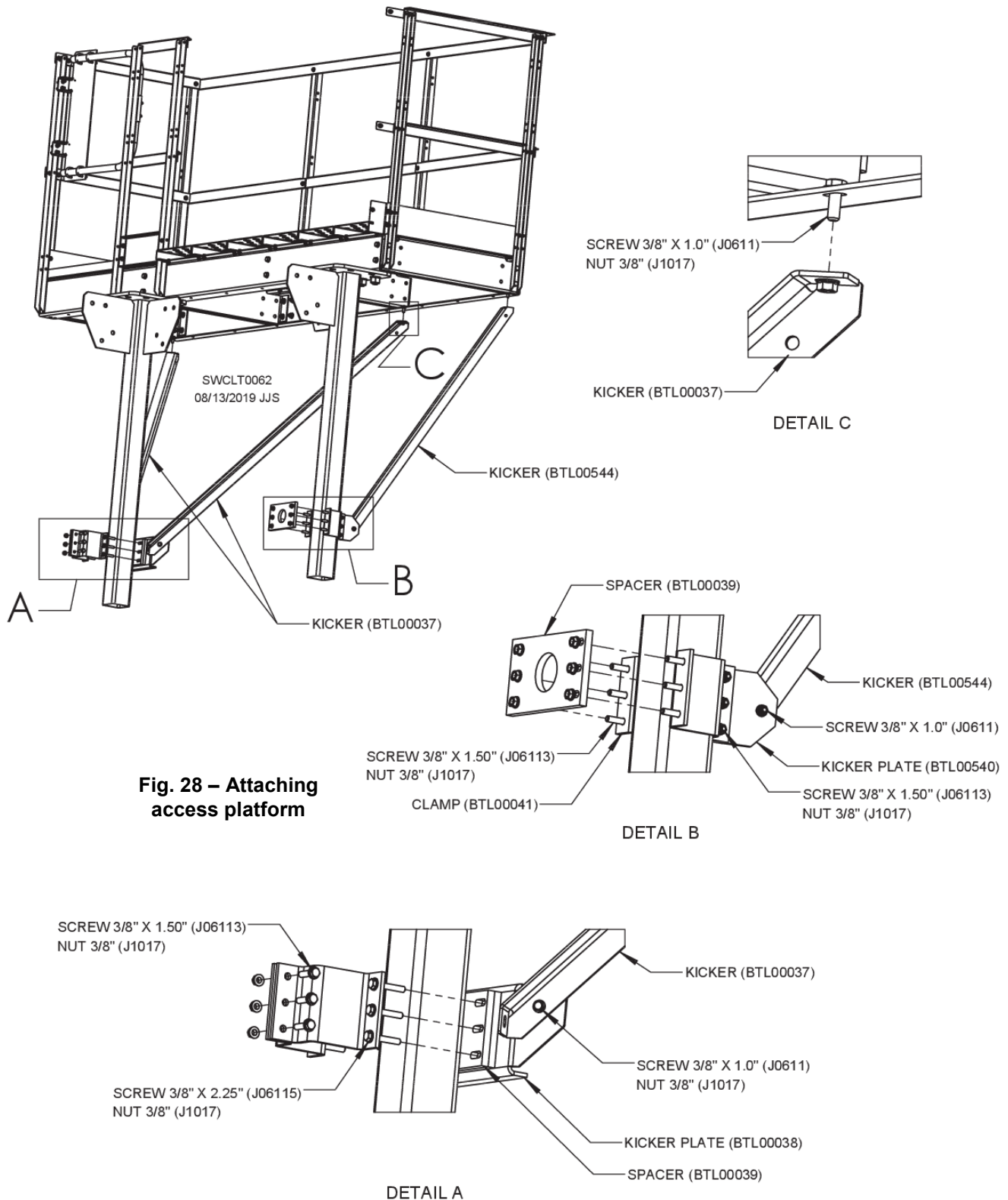


Fig. 28 – Attaching access platform

General Instructions

Use 5/16" hardware from package BTL0053H or BTL0054H to attach strap (BTL00546) between access platform and top platform as shown in Fig. 29.

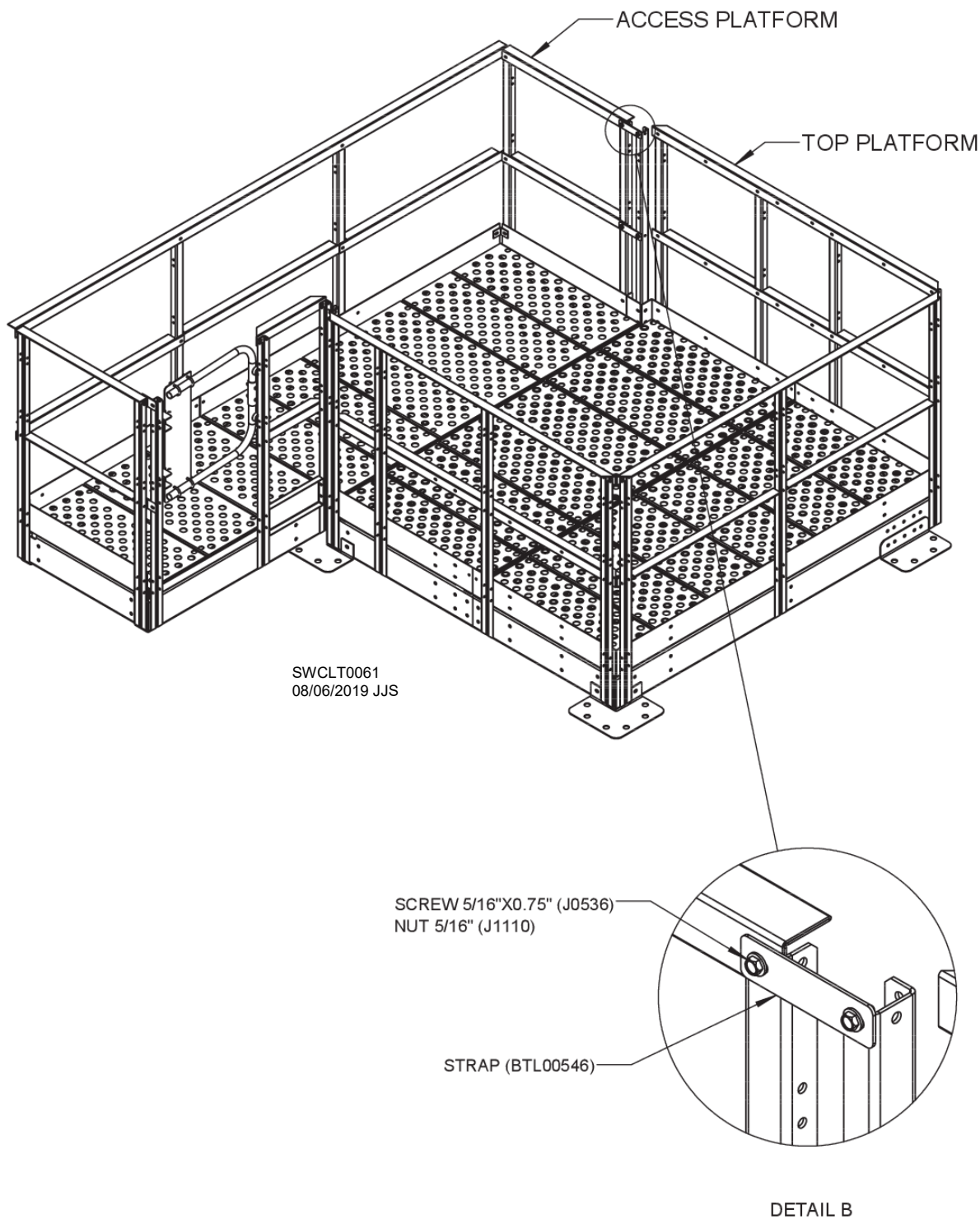


Fig. 29 – Attaching access platform

General Instructions

Ladders

Fig. 30 shows layout of ladder for use with fall arrest system. Fig. 31 shows layout of ladder with cages. See next page to determine which type of fall protection to use.

Bottom of lowest cage must be 7' to 8' from ground or platform below cage. Maximum distance between rest platforms used with cages is 50'. **TIP:** Lay out ladders starting at top of tower and work downward.

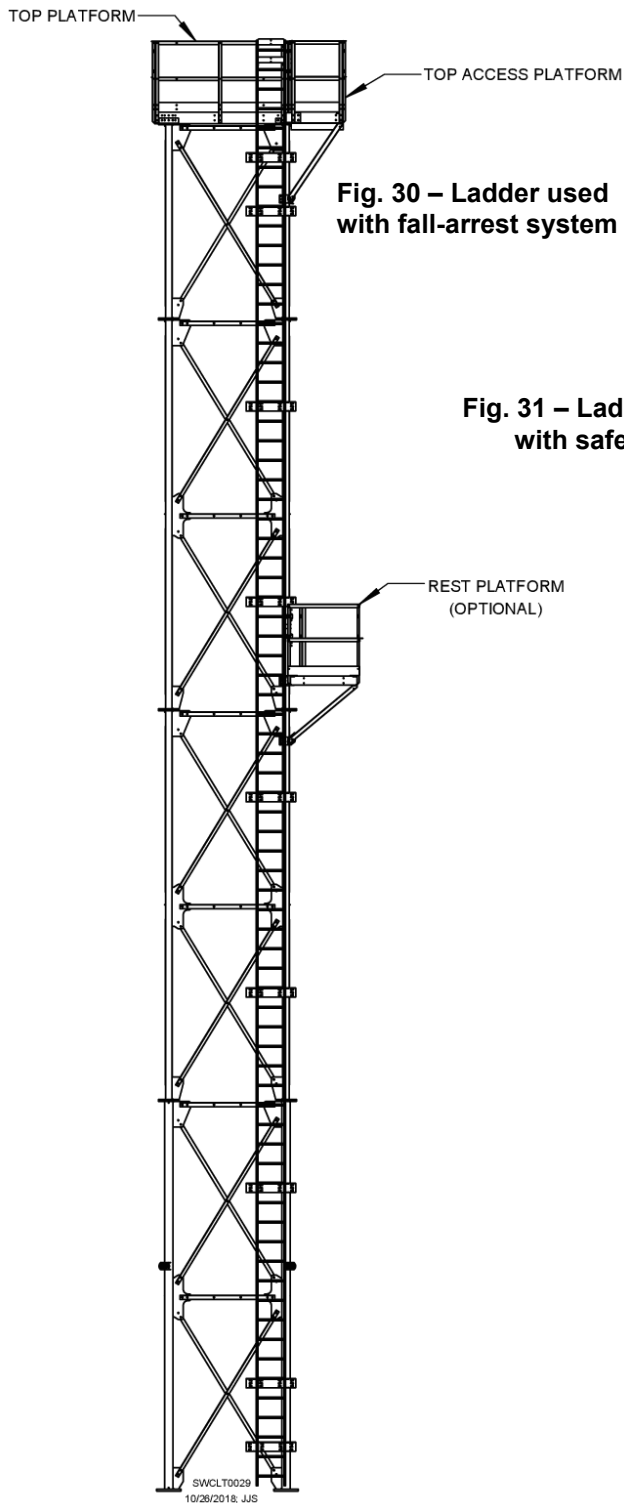
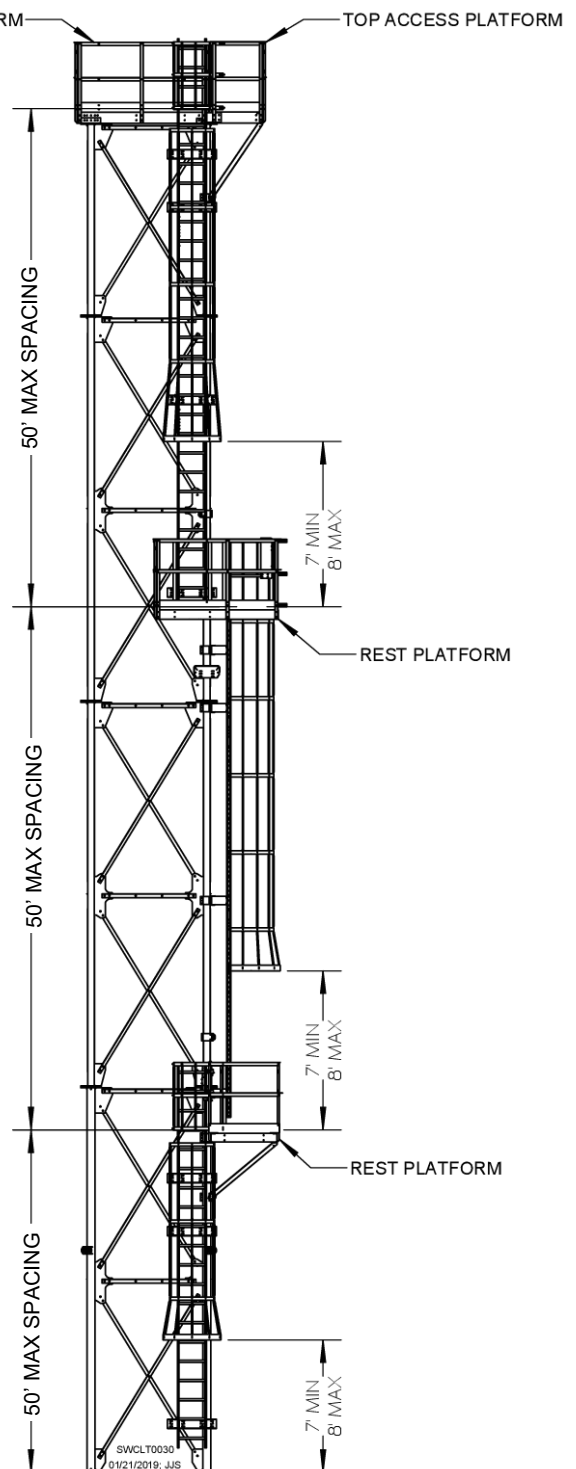


Fig. 31 – Ladder used with safety cages



General Instructions

IMPORTANT: Fall-protection equipment used with ladder will depend on height of ladder and whether federal Occupational Safety and Health Administration rules apply to conveyor site. If ladder is 24' tall or taller and tower is on an OSHA-defined commercial site (11 or more full-time employees), follow instructions on Pages 39-41 for fall-arrest cable system installation. On sites where OSHA fall-arrest cable system requirement does not apply, safety cages can be used instead. See Pages 37-38.

DISCLAIMER: It shall be the sole responsibility of the customer to determine applicability of OSHA fall protection rules at conveyor site. Sukup Manufacturing Co. will not be responsible for any personal injury or loss resulting from failure to comply or from incorrect installation or use of fall protection equipment.



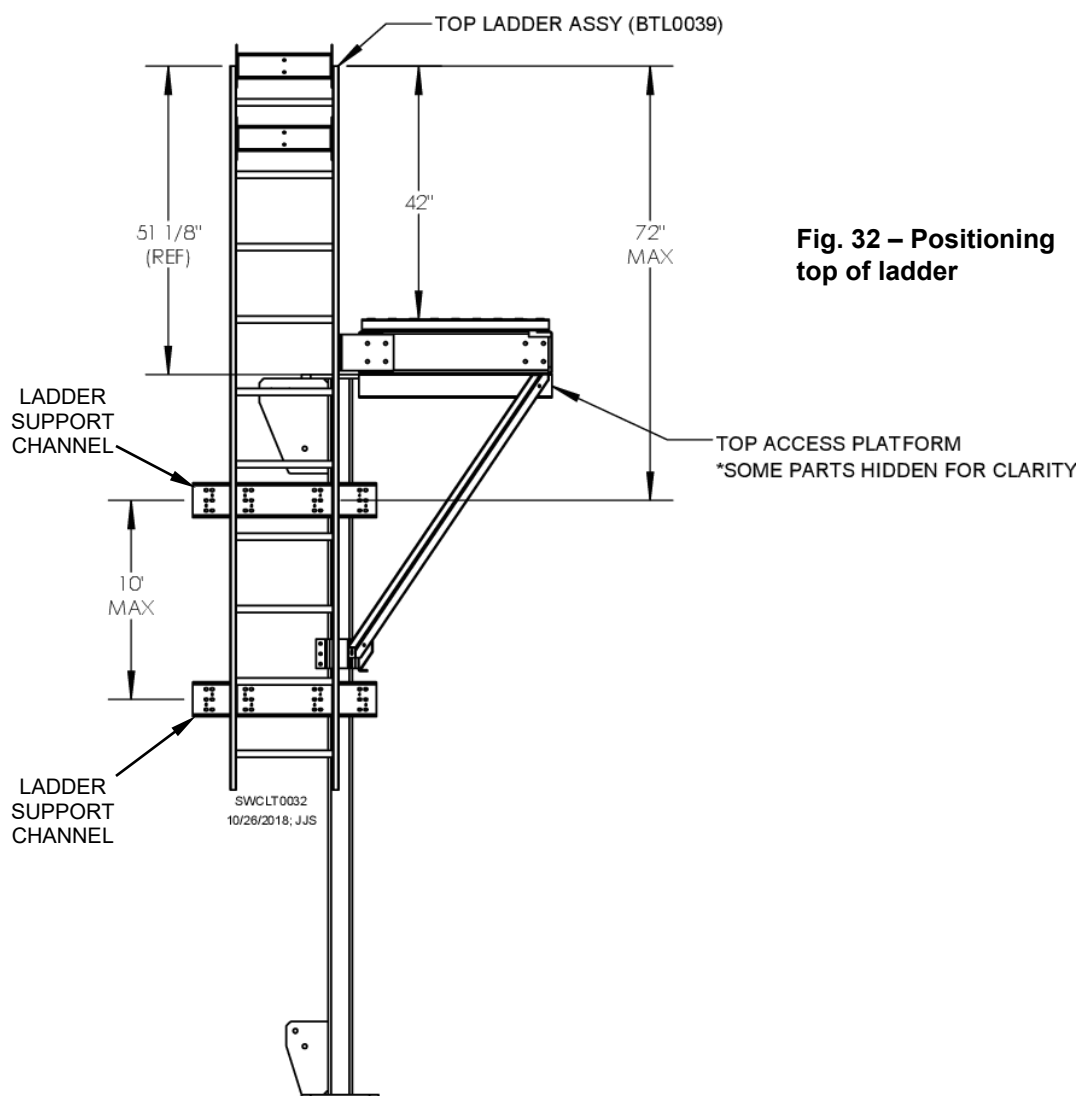
WARNING: When installing ladder sections, rung treads must face upward. Failure to heed this warning may cause death or serious injury.

Positioning Top of Ladder

NOTE: Instructions on this and Pages 34-36 apply to ladders with safety cages or fall-arrest cable system.

Position top ladder assembly (BTL0039) 42" up from walking surface on access platform. See Fig. 32.

Position top ladder support channel a maximum distance of 72" from top of ladder.



**Fig. 32 – Positioning
top of ladder**

General Instructions

Attaching Ladder to Tower Leg

Attach ladder support channels to tower leg tube with clamps and 3/8" hardware. See Details A and C of Fig. 33. Use slots marked for leg tube size. Do not exceed 120" between support channels. **NOTE:** When mounting to 5" tube, spacer plate is not needed.

Bolt ladder brackets to support channels with 3/8" hardware and attach ladder to ladder brackets. Splice ladder sections together with splice (SS00549) provided in kit. See Detail B. Trim bottom of ladder at bottom of tower as needed.

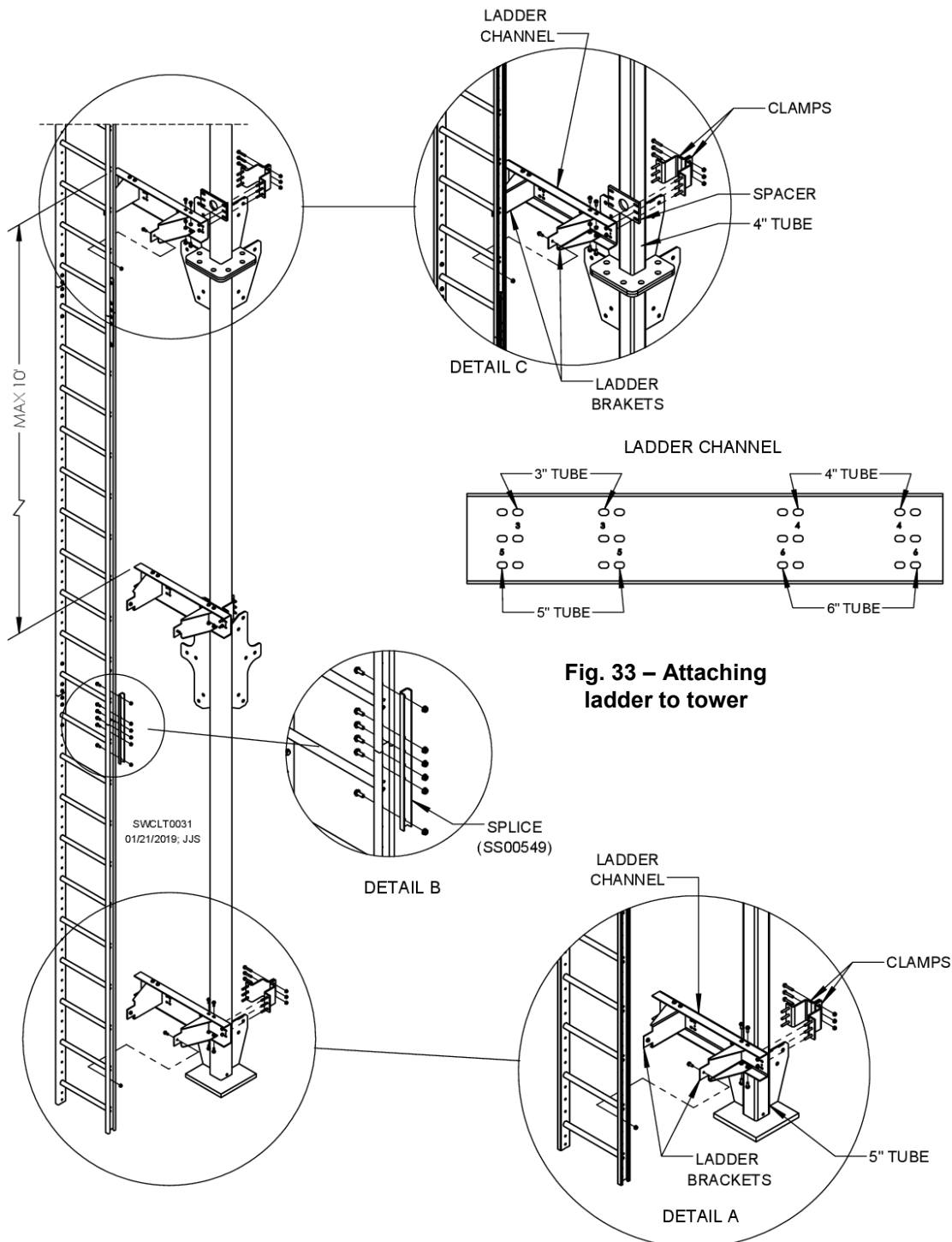


Fig. 33 – Attaching ladder to tower

General Instructions

Rest Platform

Right and left sides of tower are determined as shown in Fig. 34. Attachment instructions begin on next page.

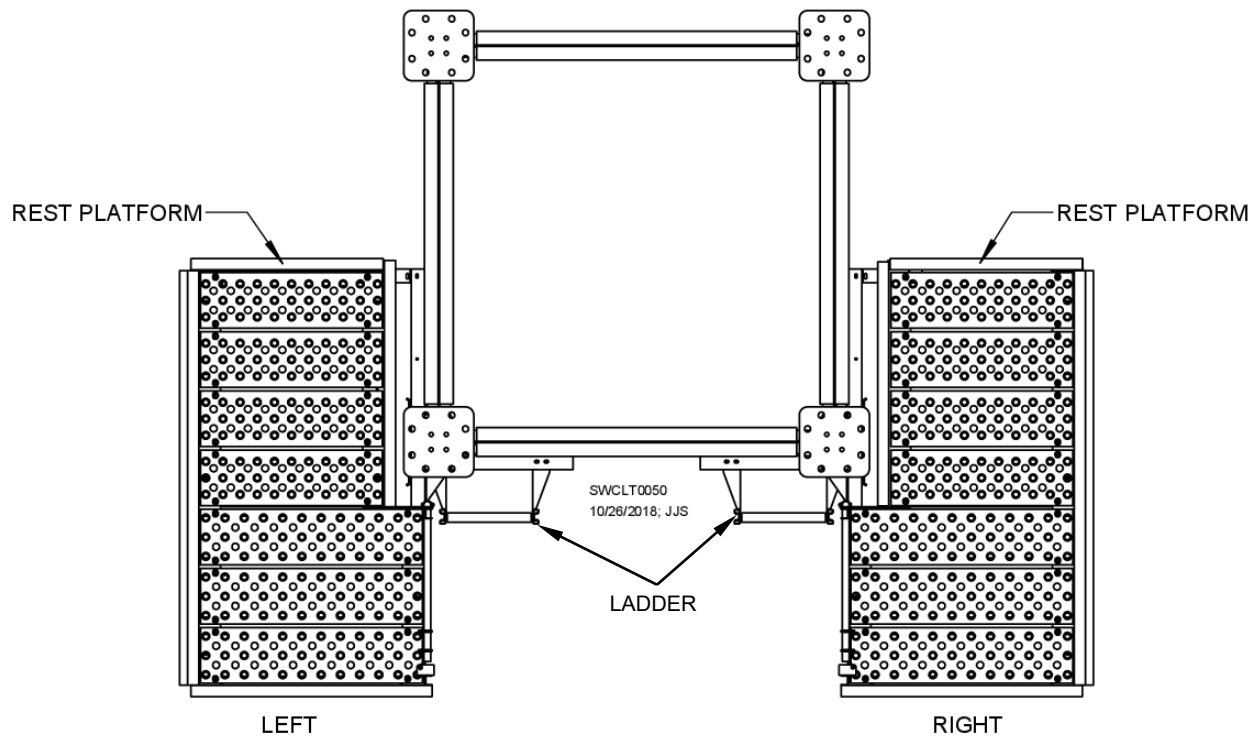
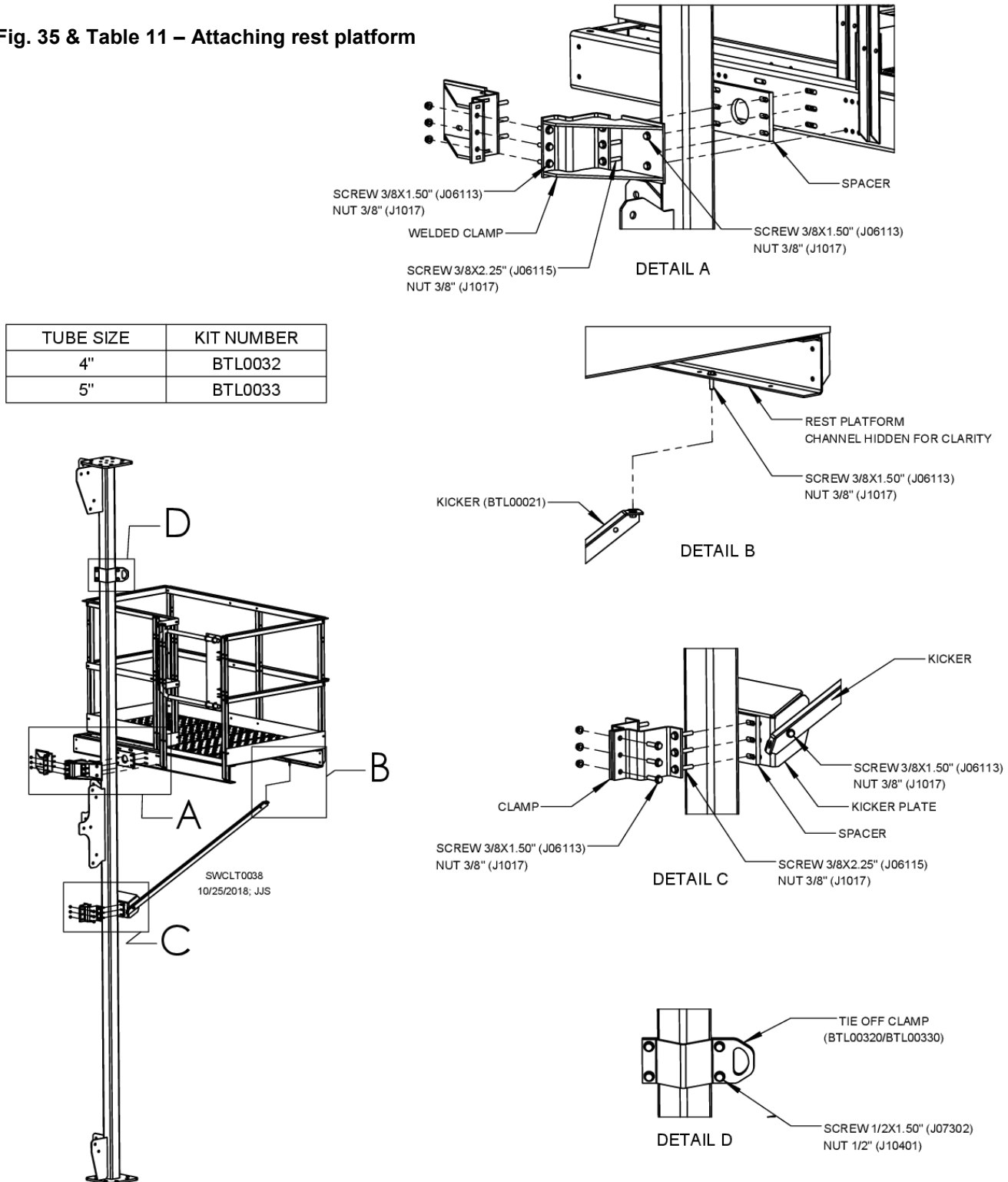


Fig. 34 – Determining left and right sides

General Instructions

Position rest platform at desired elevation. Attach to leg with welded clamp. See Detail A of Fig. 35. Bolt kicker to underside of platform as shown in Detail B and to kicker plate as shown in Detail C. Clamp kicker plate to tube as shown in Detail C. Use Kit BTL0032 to secure platform to 4" tube and Kit BTL0033 to secure platform to 5" tube. Attach fall-arrest tie-off clamp to leg at convenient location for use when stepping onto platform. See Detail D.

Fig. 35 & Table 11 – Attaching rest platform



General Instructions

Attach ladder and cages to platform as shown in Fig. 36. Cut off ends of straps as shown after attaching to corner post.

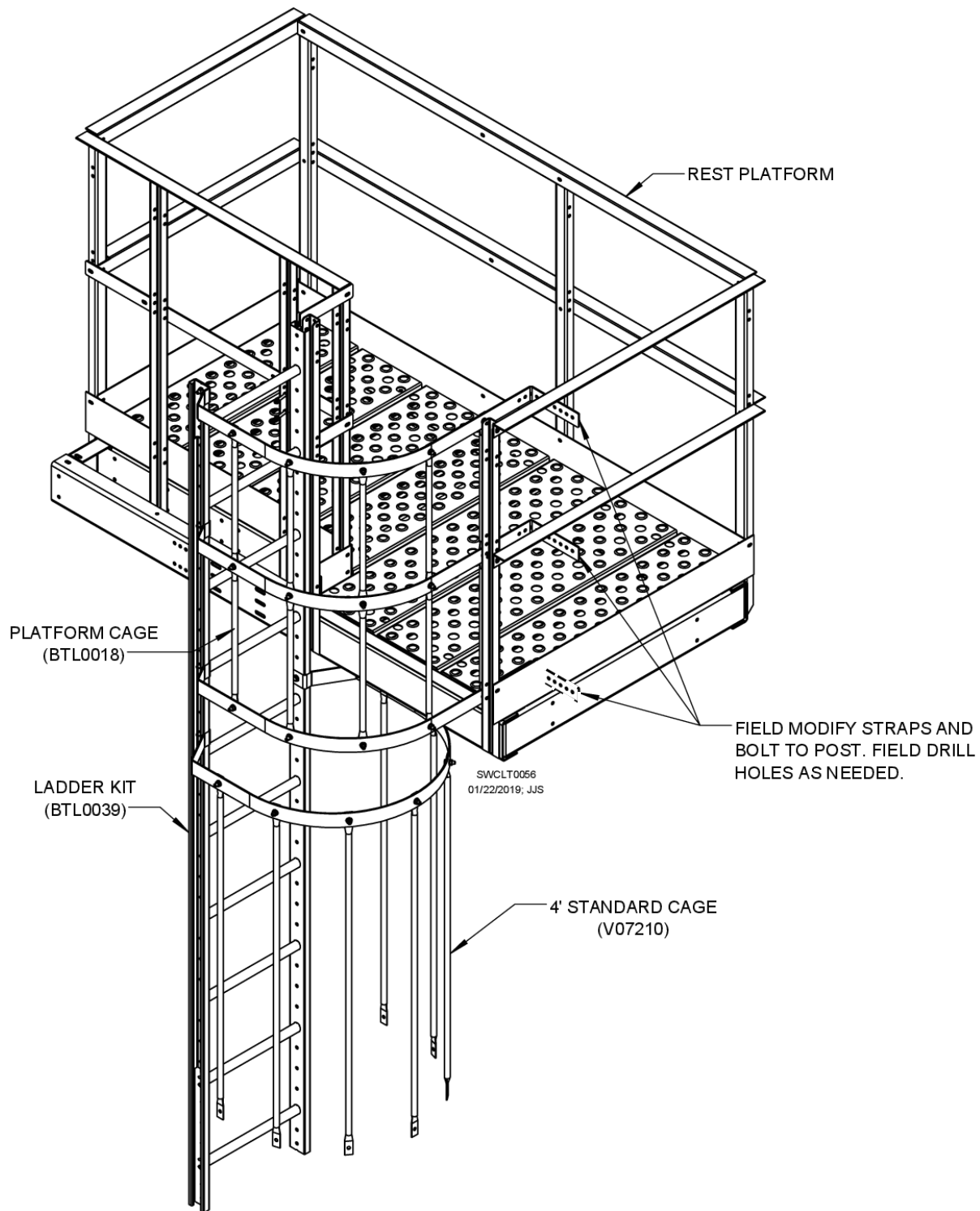
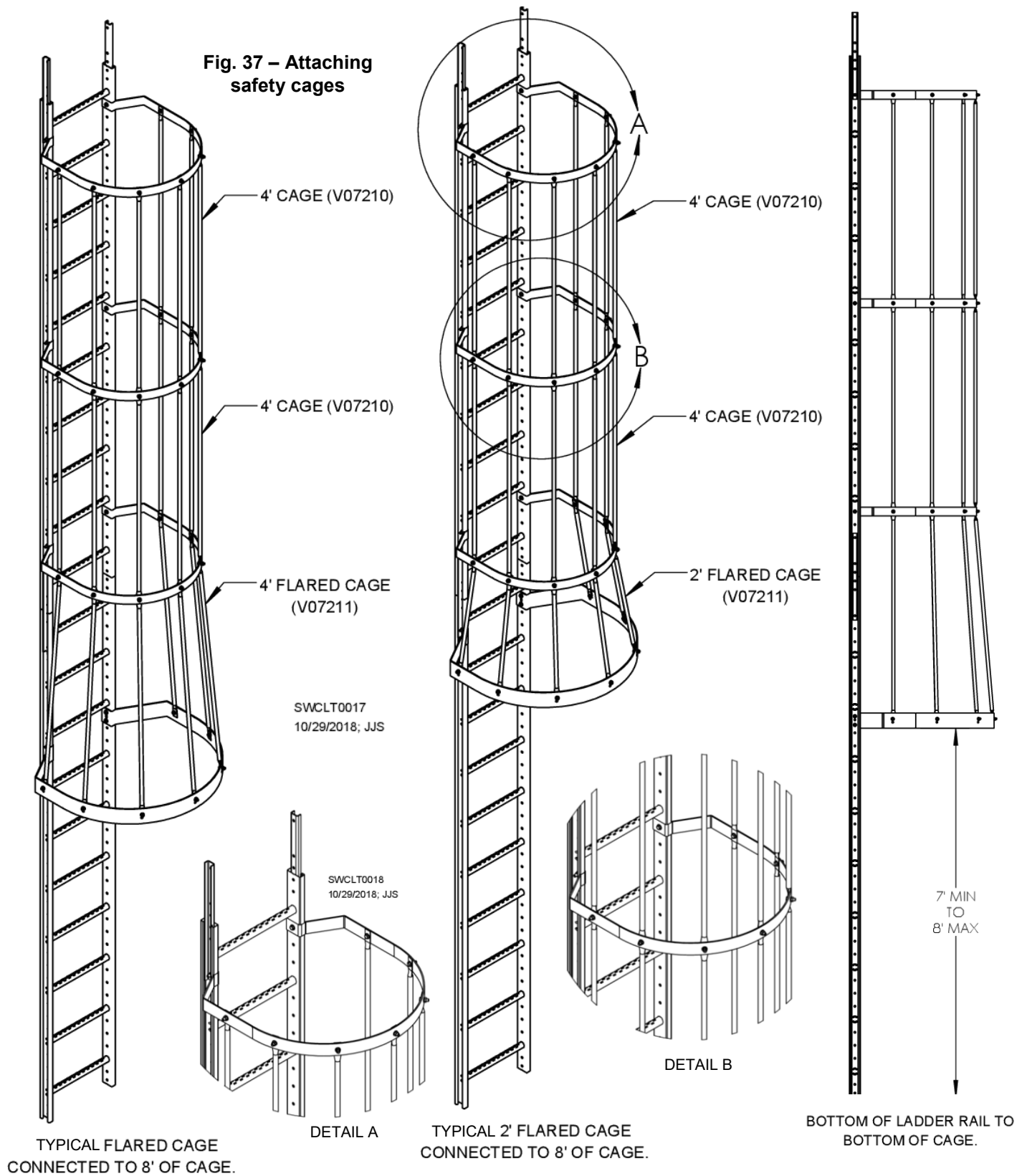


Fig. 36 – Attaching safety cage at rest platform

General Instructions

See Fig. 37 for attachment of safety cages to ladder. Cage on each run of ladder begins with flared section (4' or 2'). Use provided 3/8" hardware to fasten D-ring into place. Standard cage sections are 4' tall. Cage can be bolted to any of three sets of holes between ladder rungs.



General Instructions

Fall-Arrest Cable System

If using fall-arrest cable system, attach top bracket supports (BT5166) to ladder as shown using 3/8 x 2-1/4" bolts provided. See Detail A of Fig. 38. Attach ladder stiffener channels (SS00548) as shown in Details A and B. Attach ladder splices (SS00459) as shown in Detail C.

Attach 3M top bracket, cable, cable guide(s) and bottom bracket with hardware provided. **IMPORTANT:** See 3M LAD-SAF Fall Protection System installation manual and Pages 40-41 for further instructions.

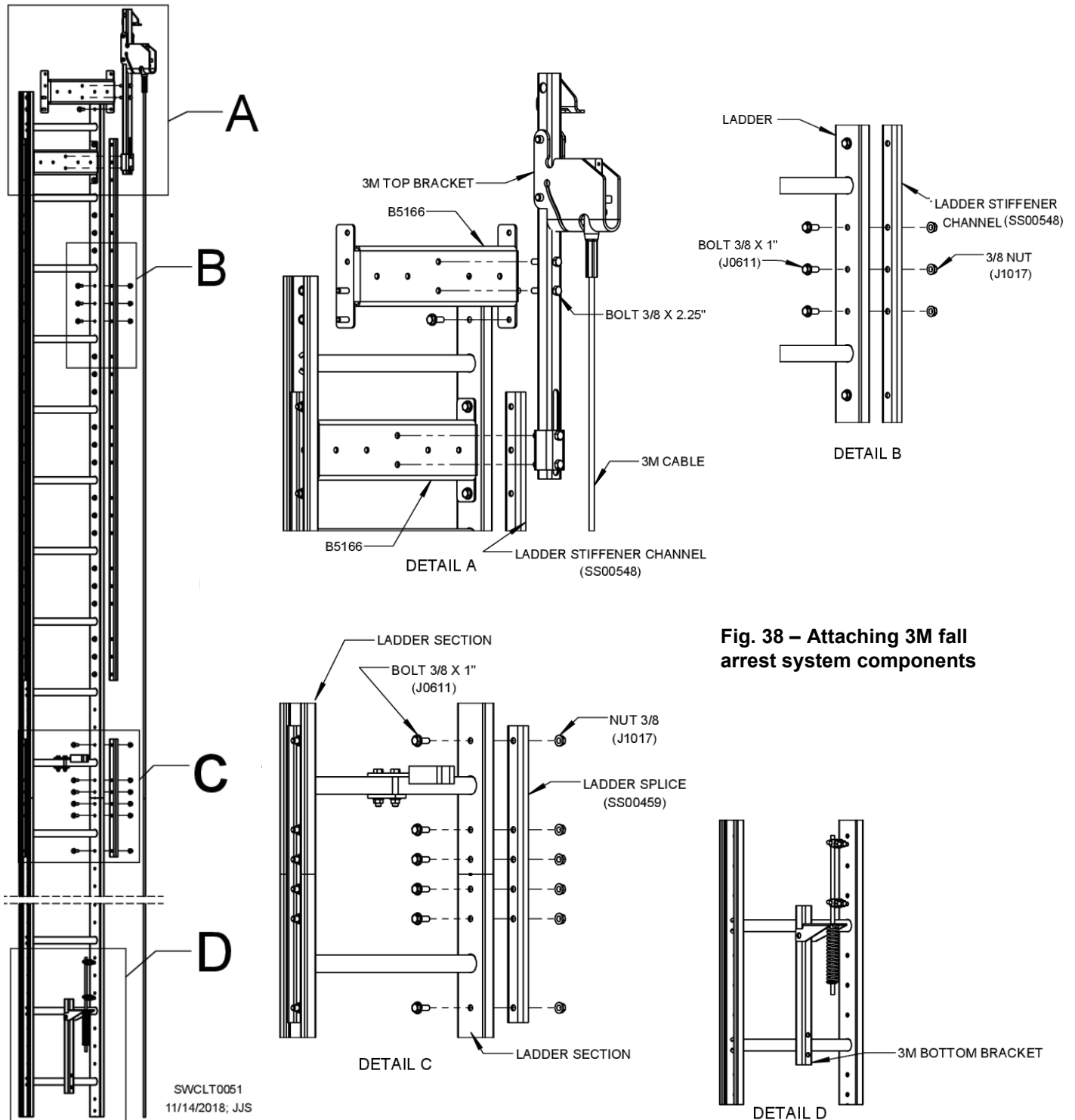


Fig. 38 – Attaching 3M fall arrest system components

General Instructions

Attach one 3M cable guide every 20 feet, spacing them equidistantly from top to bottom of ladder. Attach as shown in Image 1 with hardware provided. Insert bolts from above and secure with nuts below.

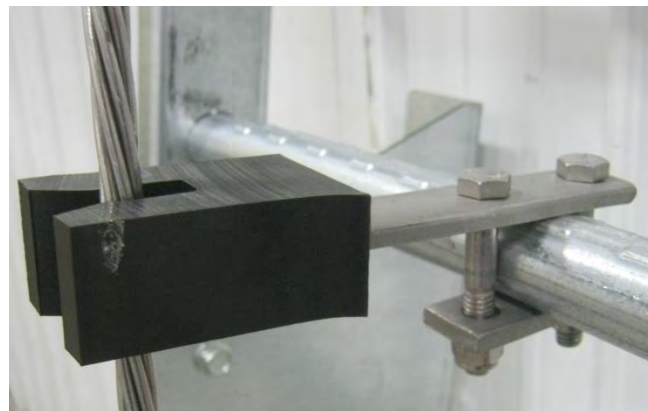


Image 1 – Cable guide attached to ladder

Attach 3M LAD-SAF cable to top 3M LAD-SAF top bracket as shown in Image 2.

Insert top of cable assembly into side of top bracket while pressing against spring gate. Small pin and spring gate are designed to prevent cable assy. from inadvertently disconnecting from top bracket. Make certain that only large pin rests inside of top bracket as shown in Image 2.



WARNING: In event of a fall, gap of fall indicator cutout will close, indicating that top bracket's strength is compromised. Bracket must be replaced. Failure to heed this warning may result in death or serious injury.

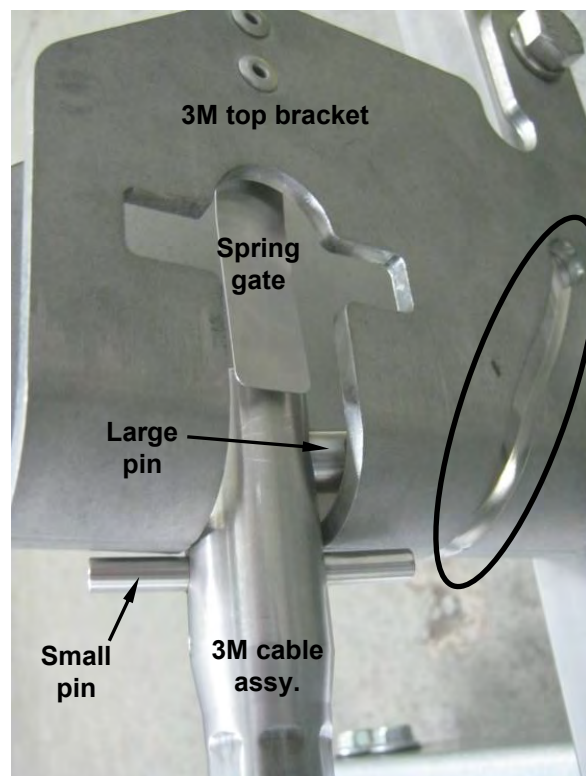


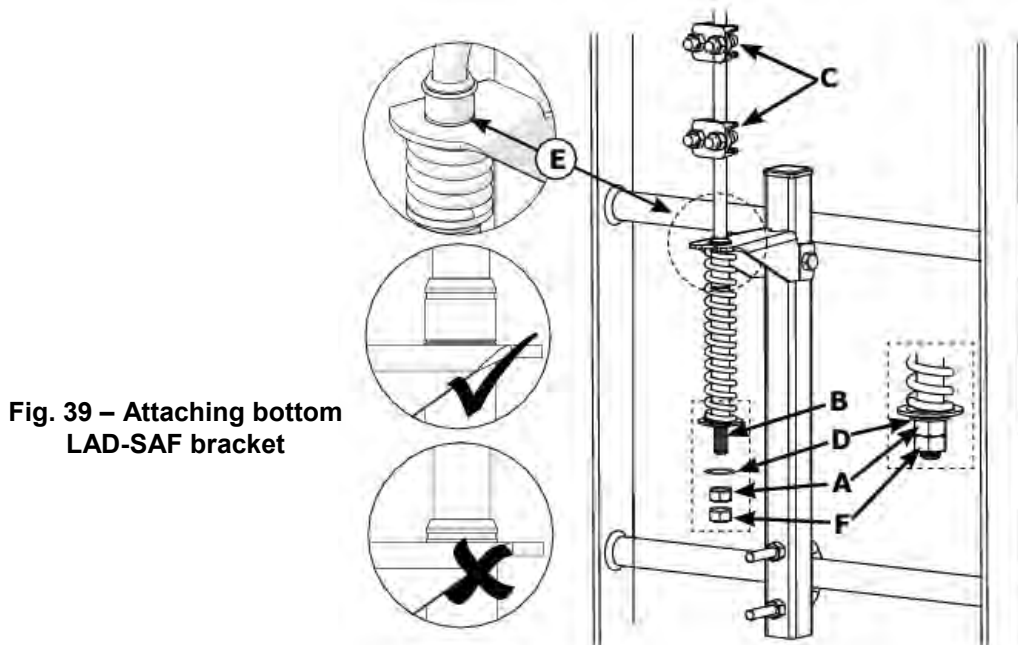
Image 2 – Cable attached to top 3M bracket
(Fall indicator cutout shown in oval)

General Instructions

Use U-bolt to attach bottom 3M LAD-SAF bottom bracket to ladder as shown in Fig. 39.

Study Fig. 39 (From 3M LAD-SAF Fall Protection System installation manual). Thread tensioning nut (A) onto end of tension rod (B) so that 3 to 5 threads are exposed below nut. Insert cable into saddle clamps (C). Lift up on tensioner assembly until tensioning nut bottoms out on bottom washer (D). Tighten saddle clamp nuts and torque to 35 ft.-lbs. (47.5 N-m). Tighten tensioning nut until groove (E) is exposed above top bracket. Tighten jam nut (F) against tensioning nut. Cut off excess cable just below the lower saddle clip.

NOTE: Fig. 39 and related instructions are used with permission of 3M. 3M is not responsible for any installation errors or incidents that may result from using instructions not authored by 3M.



Ensure all fasteners are tight and that cable does not rub against ladder. Cut off excess cable.

NOTE: Check cable tension regularly and tighten if needed. Ensure all fasteners are tight and that cable does not rub against ladder.

Attach sleeve with carabiner when using ladder. See Image 3. Follow usage instructions from manufacturers of harness and attachment sleeve.



Image 3 – Sleeve & carabiner

Maintenance

Proper maintenance of support tower will help ensure many years of extended service. Guidelines below provide tips on maintenance inspections that should be performed on a regular basis. See Construction Safety section of this manual for safety guidelines.

Platforms

- At least twice a year, check for any debris on platforms. Not cleaning debris can cause rust to develop on metal.
- Support tower load ratings vary according to size of tower and local codes. If an excessive amount of ice accumulates or builds up unevenly on platforms, it must be removed. Take care to avoid hitting fasteners.
- When on platform or ladder, inspect them for any loose pieces or unusual wear.
- Clean any stains, dirt or rust that is found.
- Replace any missing nuts and/or bolts immediately.

Braces, Legs & Connection Plates

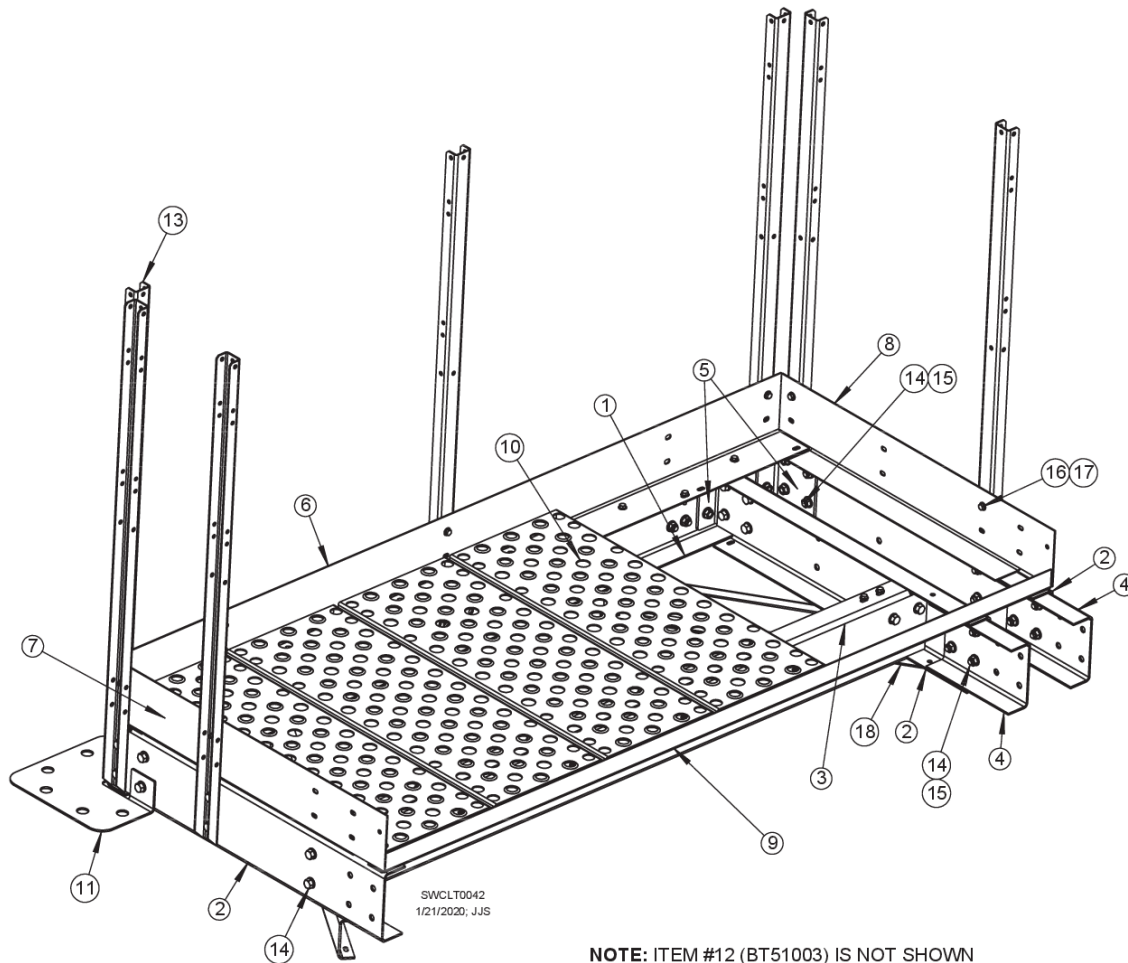
- Inspect tower on a regular basis. Check for any unusual changes in its appearance. Pay particular attention to joints. Replace any missing nuts and/or bolts immediately. Note any bending or cracks, which are signs of over-stress. If a serious structural problem is detected, contact Sukup Manufacturing Co.

Foundation

- Inspect support tower and foundation for structural problems. Uneven foundation settling will compromise structural strength.
- Inspect concrete routinely for exposed rebar, unusual cracking, or spalling of concrete.
- Be sure all anchor bolts are tight and undamaged. Cracks that develop around anchor bolts result in tower being susceptible to wind damage. Be certain base of tower is uniformly anchored to foundation and all anchor bolts are tight.

PARTS/ASSEMBLIES

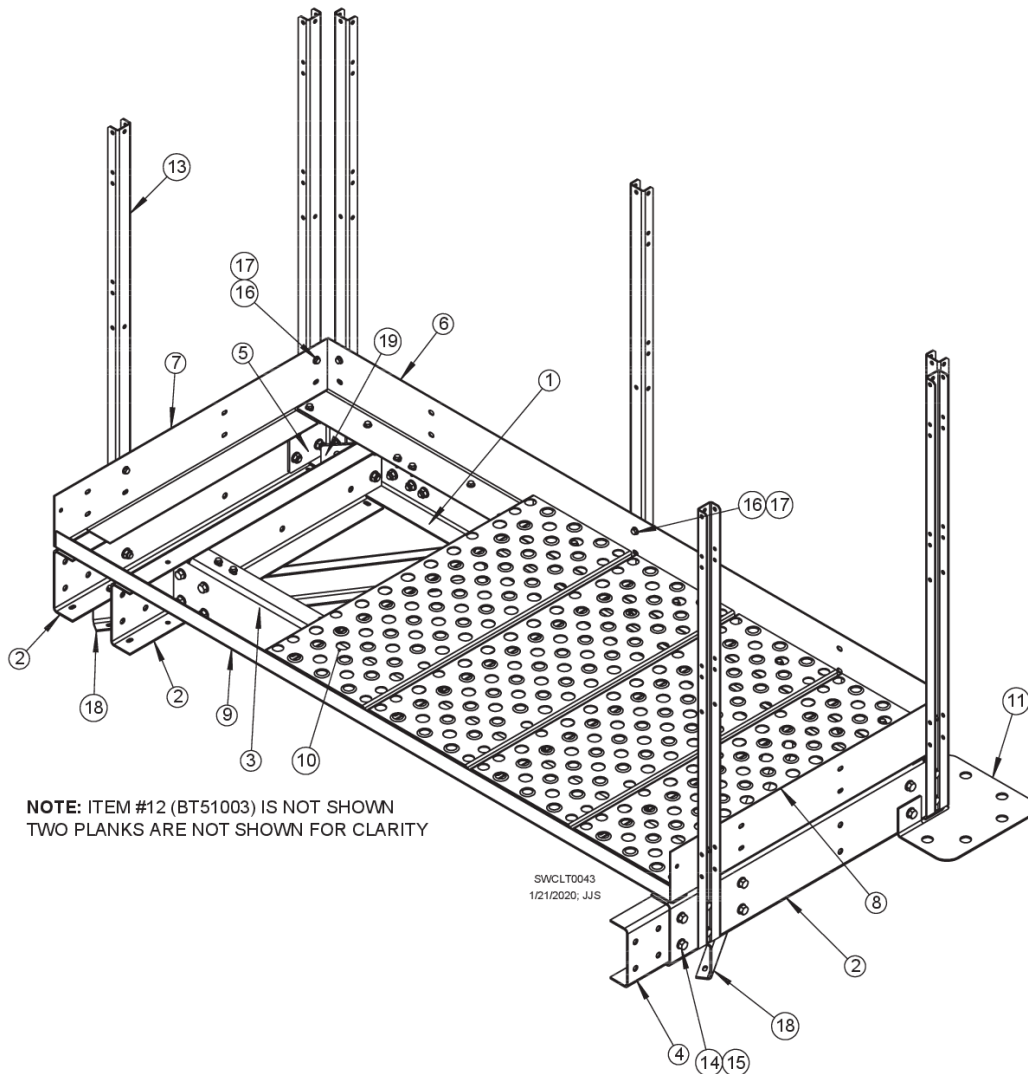
TOP PLATFORM RIGHT HALF, BT5141



NOTE: ITEM #12 (BT51003) IS NOT SHOWN
TWO PLANKS ARE NOT SHOWN FOR CLARITY

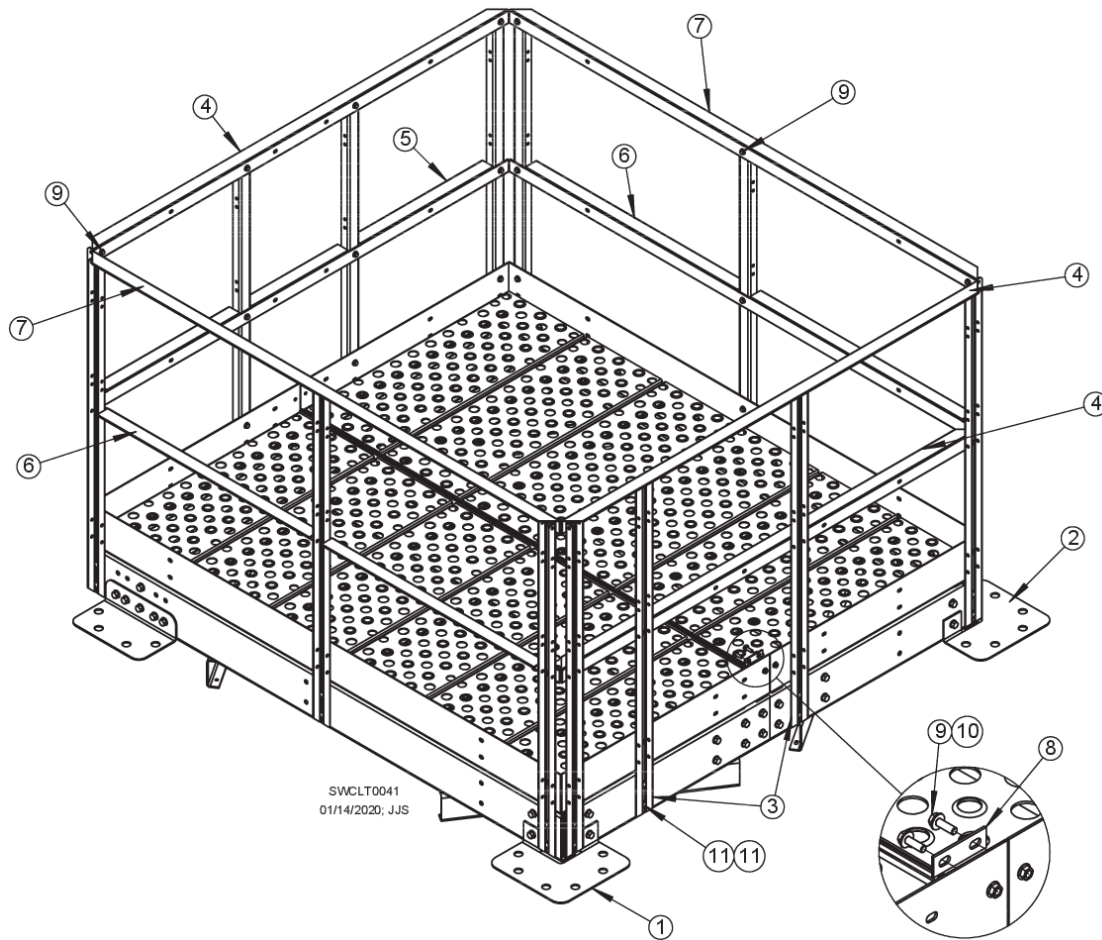
ITEM #	DESCRIPTION	PART #	QTY.
1	CHNL, SIDE, 7X2.5, 8GA, 80.625	BT51410	1
2	CHNL, MAIN, 7X2.5, 8GA, 35.208	BT51411	3
3	CHNL, FLR SPRT, 7X2.5, 8GA, 72.000	BT51412	1
4	SPLICE, CHANNEL, 1/2B, 10.750L	BT51419	2
5	BRKT, CNR, 5.250X2.50, 1/4T, 1/2B	BT51413	5
6	TOEKICK, 12GA, 6X4.108, 80.500	BT51414	1
7	TOEKICK, 12GA, 6X3.108, 35.656, RT	BT51415	1
8	TOEKICK, 12GA, 6X3.108, 35.656, LT	BT51401	1
9	NOSING, PLANK, 12GA, 5/16B, 80.250	BT51417	1
10	PLANK, 35.000L, 13.000W, 1.875T	BT51416	6
11	BRKT, TWR, 12.7X12.7, 8GA, 1/2B, 1B	BT51418	1
12	BRKT, TWR, 3.5X4.125, 8GA, 1/2B, 1B	BT51003	1
13	POST, GRDRL, 8GA, 1/2B, 49.563	BT51249	7
14	SCREW, 1/2-13, 1.00, PLT, GR5, HHWZ	J07252	50
15	NUT, 1/2-13, PLT, GR5, HHWZ	J10401	50
16	SCREW, 5/16-18, 1.00, PLT, G5, HHWZ	J0537	49
17	NUT, WHIZ, 5/16-18	J1110	49
18	PLTFRM, SHIPPING CHNL, 8GA, 36.94	BT51402	2

TOP PLATFORM LEFT HALF, BT5142



ITEM #	DESCRIPTION	PART #	QTY.
1	CHNL,SIDE,7X2.5,8GA,80.625	BT51410	1
2	CHNL,MAIN,7X2.5,8GA,35.208	BT51411	3
3	CHNL,FLR SPRT,7X2.5,8GA,72.000	BT51412	1
4	SPLICE,CHANNEL,1/2B,10.750L	BT51419	1
5	BRKT,CNR,5.250X2.50,1/4T,1/2B	BT51413	5
6	TOEKICK,12GA,6X4.108,80.500	BT51414	1
7	TOEKICK,12GA,6X3.108,35.656,RT	BT51415	1
8	TOEKICK,12GA,6X3.108,35.656,LT	BT51401	1
9	NOSING,PLANK,12GA,5/16B,80.250	BT51417	1
10	PLANK,35.000L,13.000W,1.875T	BT51416	6
11	BRKT,TWR,12.7X12.7,8GA,1/2B,1B	BT51418	1
12	BRKT,TWR,3.5X4.125,8GA,1/2B,1B	BT51003	1
13	POST,GRDRL,8GA,1/2B,49.563	BT51249	7
14	SCREW,1/2-13,1.00,PLT,GR5,HHWZ	J07252	41
15	NUT,1/2-13,PLT,GR5,HHWZ	J10401	41
16	SCREW,5/16-18,1.00,PLT,G5,HHWZ	J0537	49
17	NUT,WHIZ,5/16-18	J1110	49
18	PLTFRM,SHIPPING CHNL,8GA,36.94	BT51402	2
19	BRKT,ANGLE,90/139.5,1/4T,1/2B	BT51352	1

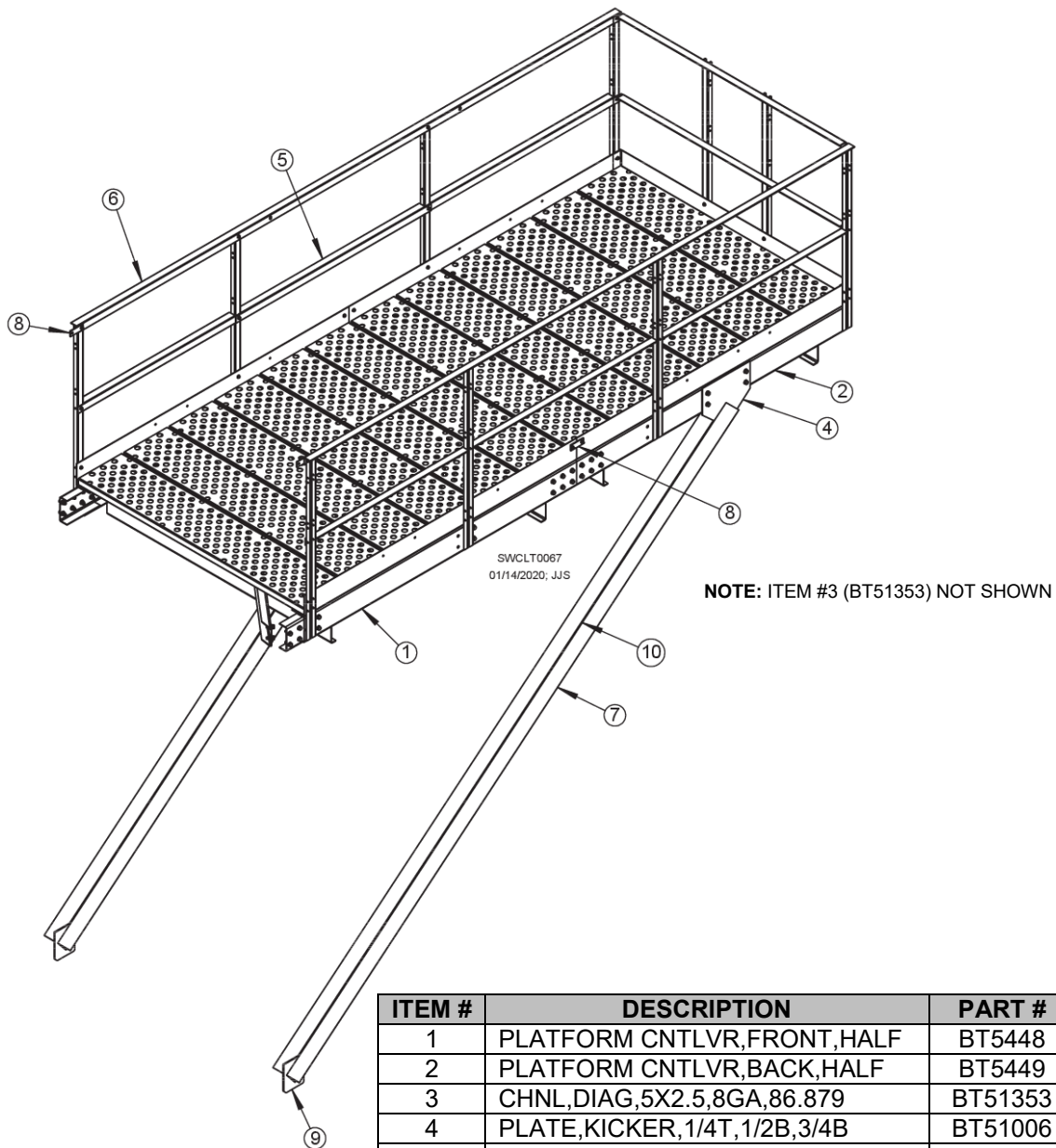
TOP PLATFORM (BT5143)



ITEM #	DESCRIPTION	PART #	QTY.
1	PLATFORM, HALF, TOP, 35.9X80.6, RT	BT5141	1
2	PLATFORM, HALF, TOP, 35.9X80.6, LT	BT5142	1
3	POST, GRDRL, 8GA, 1/2B, 49.563	BT51249	2
4	HANDRAIL, TOP/MID, 71.250, 5/16B	BT51430	3
5	HANDRAIL, MID, 71.250, 5/16B	BT51431	1
6	HANDRAIL, MID, 80.125, 5/16B	BT51432	2
7	HANDRAIL, TOP, 80.125, 5/16B	BT51433	2
8	SPLICE PLATE, TOEKICK, PLTFRM	BT55008	1
9	SCREW, 5/16-18, 1.00, PLT, G5, HHWZ	J0537	32
10	NUT, WHIZ, 5/16-18	J1110	32
11	SCREW, 1/2-13, 1.00, PLT, GR5, HHWZ	J07252	14
12	NUT, 1/2-13, PLT, GR5, FLANGE	J10401	14

Items 8-12 are in hardware package BT5143H

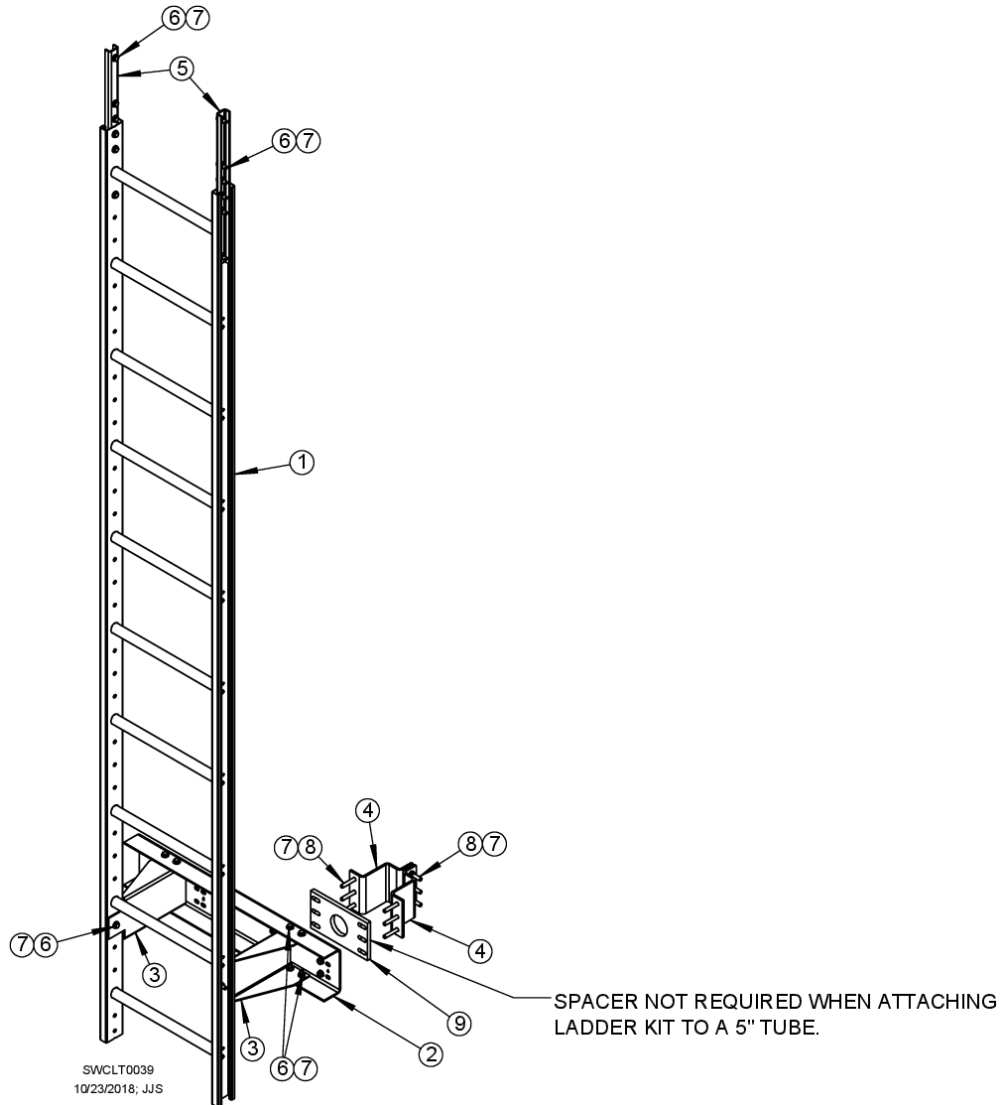
CANTILEVER PLATFORM SUPPORTS & GUARD RAILS (BT5459G)



ITEM #	DESCRIPTION	PART #	QTY.
1	PLATFORM CNTLVR,FRONT,HALF	BT5448	1
2	PLATFORM CNTLVR,BACK,HALF	BT5449	1
3	CHNL,DIAG,5X2.5,8GA,86.879	BT51353	1
4	PLATE,KICKER,1/4T,1/2B,3/4B	BT51006	2
5	HNDRL,PLTFRM,MID,61.425	BT51350	2
6	HNDRL,PLTFRM,TOP,171.250	BT51339	2
7	BRC,KICK,4X4X1/4,213.313,3/4B	BT51007G	4
8	PLATE,SPLICE,TOEKICK,5/16B	BT51005	4
9	TAB,KICKER,8.000,1/4T,3/4B	BT51008	2
10	SPACER,4.00"DIA,1/4T,3/4B	BT51371G	6
11	SCREW,1/2-13,1.25,PLT,GR5,HHWZ	J07282	36
12	NUT,1/2-13,PLT,GR5,FLANGE	J10401	36
13	SCREW,5/16-18,1.00,PLT,G5,HHWZ	J0537	11
14	NUT,WHIZ,5/16-18	J1110	11
15	BOLT,3/4-10,2.00,A325,STRUC	J08281	11
16	WASHER FLAT,3/4",ASTM F436	J11301	11
17	NUT,3/4-10,A563 GRADE DH	J10514	11

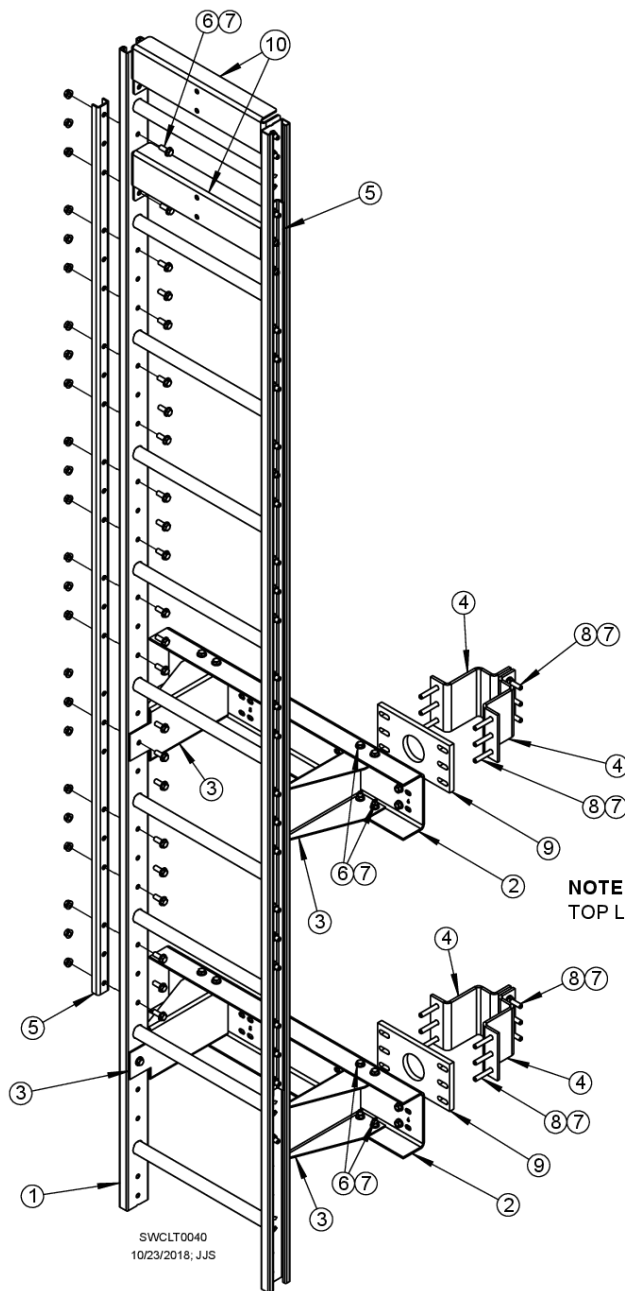
Items 8-17 are in hardware package BT5459H

LADDER KIT BTL0037, 4" & 5" TUBES



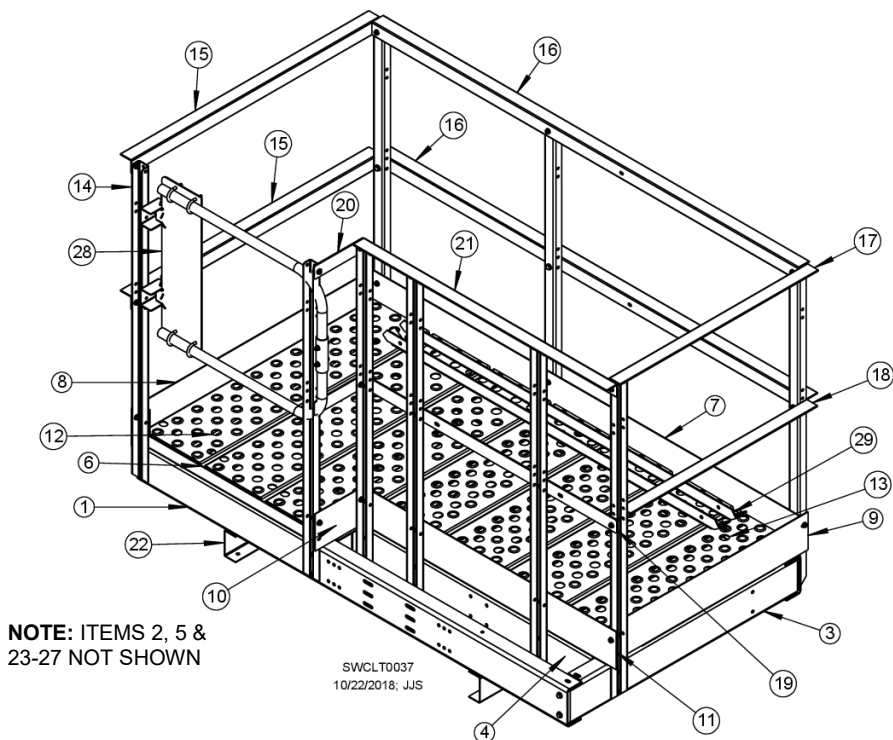
ITEM #	DESCRIPTION	PART #	QTY.
1	LADDER 10'	B50810	1
2	CHNL,LDR,5.75X2.50,8GA,30.438	BTL0029	1
3	BRKT,4"-5" TUBE,LDR,3/8B	BTL0027	2
4	CLAMP,4"-5" TUBE,LDR,3/8B	BTL00041	2
5	CHNL,LDR SPLICE,20.000,3/8B	SS00549	2
6	SCREW,3/8-16,1.00,GR8,HHWZ	J0611	22
7	NUT,3/8-16 FLANGE WHIZLOK	J1017	31
8	SCREW,3/8-16,2.25,PLT,GR8,HHWZ	J06115	9
9	PLATE,SPACER,8.625X4.875,1/2T	BTL00039	1

TOP LADDER KIT (BTL0039), 4" & 5" TUBES



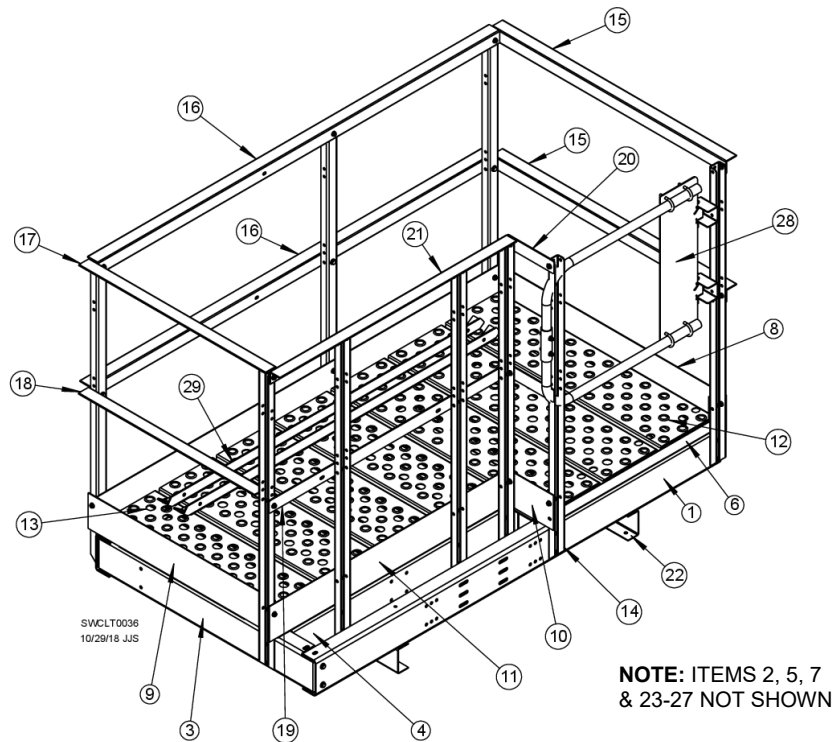
ITEM #	DESCRIPTION	PART #	QTY.
1	LADDER 10'	B50810	1
2	CHNL,LDR,5.75X2.50,8GA,30.438	BTL0029	2
3	BRKT,4"-5" TUBE,LDR,3/8B	BTL0027	4
4	CLAMP,4"-5" TUBE,LDR,3/8B	BTL00041	4
5	CHNL,LDR STIFFENER,92.000	SS00548	2
6	SCREW,3/8-16,1.00,GR8,HHWZ	J0611	70
7	NUT,3/8-16 FLANGE WHIZLOK	J1017	88
8	SCREW,3/8-16,2.25,PLT,GR8,HHWZ	J06115	18
9	PLATE,SPACER,8.625X4.875,1/2T	BTL00039	2
10	FALL PROTECTION,MOUNTING BRKT	B5161	2

REST PLATFORM, LEFT (BTL0023)



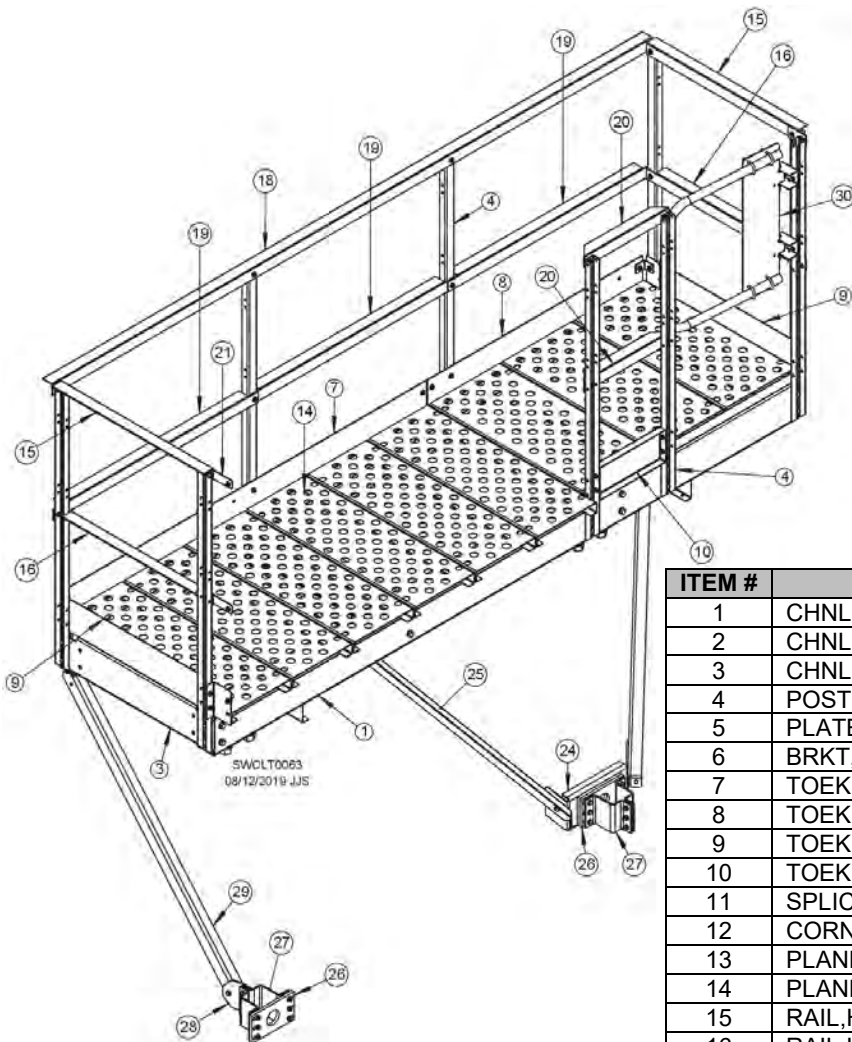
ITEM #	DESCRIPTION	PART #	QTY.
1	CHNL,FRONT,5.75X2.50,8GA,76.00	BTL00230	1
2	CHNL,BACK,5.75X2.50,8GA,76.00	BTL00231	1
3	CHNL,SIDE,5.58X2.50,8GA,40.00	BTL00232	3
4	CHNL,INNER,5.42X2.50,8GA,33.75	BTL00233	1
5	CHNL,INNER,5.42X2.50,8GA,38.09	BTL00010	2
6	TOEKICK,ACCESS,12GA,32.103	BTL00234	1
7	TOEKICK,BACK,12GA,75.331	BTL00237	1
8	TOEKICK,SIDE,12GA,43.906	BTL00235	1
9	TOEKICK,SIDE,12GA,35.031	BTL00236	1
10	TOEKICK,FLAT,12GA,8.531	BTL00239	1
11	TOEKICK,FRONT,12GA,44.785,LT	BTL00241	1
12	PLANK,REST PLATFORM,40.375	BTL00012	3
13	PLANK,REST PLATFORM,30.063	BTL00011	4
14	POST,HANDRAIL,LDR TWR,W/ GATE	BTL00020	9
15	RAIL,HMD,TOP/MID,43.875,5/16B	BTL00019	2
16	RAIL,HMD,TOP/MID,75.313,5/16B	BTL00018	2
17	RAIL,HMD,TOP,35.000,5/16B,LT	BTL00243	1
18	RAIL,HMD,MID,35.000,5/16B,LT	BTL00242	1
19	GUARDRAIL,FLT,8GA,44.750,5/16B	BTL00014	1
20	GUARDRAIL,FLT,8GA,8.875,5/16B	BTL00013	2
21	RAIL,HMD,TOP,44.750,5/16B	BTL00240	1
22	CHNL,SHIP,4.00X2.50,8GA,41.313	BTL00022	2
23	SCREW,3/8-16,2.25,PLT,GR8,HHWZ	J06115	3
24	SCREW,3/8-16,1.00,GR8,HHWZ	J0611	30
25	NUT,3/8-16 FLANGE WHIZLOK	J1017	33
26	SCREW,5/16-18,3/4",PLT,GR5,HHWZ	J0536	74
27	NUT,WHIZ,5/16-18	J1110	74
28	GATE,PLATFORM,BIN LADDER	BSG0010	1
29	BRACE,KICKER,2X2X8GA,60.683	BTL00021	2

REST PLATFORM, RIGHT (BTL0024)



ITEM #	DESCRIPTION	PART #	QTY.
1	CHNL,FRONT,5.75X2.50,8GA,76.00	BTL00230	1
2	CHNL,BACK,5.75X2.50,8GA,76.00	BTL00231	1
3	CHNL,SIDE,5.58X2.50,8GA,40.00	BTL00232	3
4	CHNL,INNER,5.42X2.50,8GA,33.75	BTL00233	1
5	CHNL,INNER,5.42X2.50,8GA,38.09	BTL00010	2
6	TOEKICK,ACCESS,12GA,32.103	BTL00234	1
7	TOEKICK,BACK,12GA,75.331	BTL00237	1
8	TOEKICK,SIDE,12GA,43.906	BTL00235	1
9	TOEKICK,SIDE,12GA,35.031	BTL00236	1
10	TOEKICK,FLAT,12GA,8.531	BTL00239	1
11	TOEKICK,FRONT,12GA,44.785,RT	BTL00241	1
12	PLANK,REST PLATFORM,40.375	BTL00012	3
13	PLANK,REST PLATFORM,30.063	BTL00011	4
14	POST,HANDRAIL,LDR TWR,W/ GATE	BTL00020	9
15	RAIL,HMD,TOP/MID,43.875,5/16B	BTL00019	2
16	RAIL,HMD,TOP/MID,75.313,5/16B	BTL00018	2
17	RAIL,HMD,TOP,35.000,5/16B,RT	BTL00243	1
18	RAIL,HMD,MID,35.000,5/16B,RT	BTL00242	1
19	GUARDRAIL,FLT,8GA,44.750,5/16B	BTL00014	1
20	GUARDRAIL,FLT,8GA,8.875,5/16B	BTL00013	2
21	RAIL,HMD,TOP,44.750,5/16B,RT	BTL00240	1
22	CHNL,SHIP,4.00X2.50,8GA,41.313	BTL00022	2
23	SCREW,3/8-16,2.25,PLT,GR8,HHWZ	J06115	3
24	SCREW,3/8-16,1.00,GR8,HHWZ	J0611	30
25	NUT,3/8-16 FLANGE WHIZLOK	J1017	33
26	SCREW,5/16-18,3/4",PLT,GR5,HHWZ	J0536	74
27	NUT,WHIZ,5/16-18	J1110	74
28	GATE,PLATFORM,BIN LADDER	BSG0010	1
29	BRACE,KICKER,2X2X8GA,60.683	BTL00021	2

ACCESS PLATFORM, RIGHT (BTL0053)



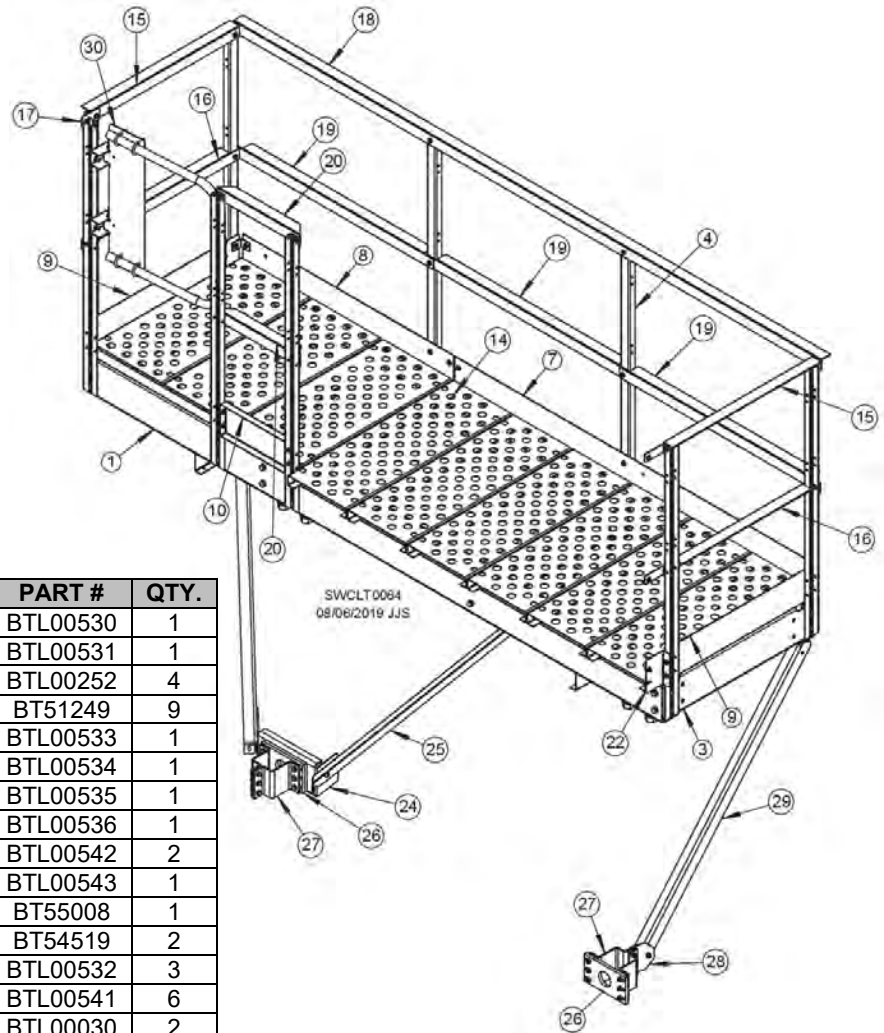
ITEMS NOT SHOWN ARE IN
HARDWARE PACKAGE BTL0053H

ITEM #	DESCRIPTION	PART #	QTY.
1	CHNL,MAIN,7X3.625,119.875	BTL00530	1
2	CHNL,BACK,7X2.50,119.875	BTL00531	1
3	CHNL,SIDE,6.83X2.50,8GA,31.666	BTL00252	4
4	POST,GRDRL,8GA,1/2B,49.563	BT51249	9
5	PLATE,PLANK BRKT,5.250X74.750	BTL00533	1
6	BRKT,L,PLANK,3.625X1.875,44.00	BTL00534	1
7	TOEKICK,L,6.00X3.625,74.750	BTL00535	1
8	TOEKICK,L,6.00X3.625,44.000	BTL00536	1
9	TOEKICK,L,6.00X3.00,31.000	BTL00542	2
10	TOEKICK,C,5.813X1.250,13.625	BTL00543	1
11	SPLICE PLATE,TOEKICK,PLTFRM	BT55008	1
12	CORNER SPLICE PLATE,PLATFORM	BT54519	2
13	PLANK,31.00L,14.50W,1.875H	BTL00532	3
14	PLANK,34.50L,12.25W,1.875H	BTL00541	6
15	RAIL,HMD,TOP,30.988,5/16B	BTL00030	2
16	RAIL,HMD,MID,30.988,5/16B	BTL00031	2
17	GUARDRAIL,FLT,8GA,3.625,5/16B	BTL00033	2
18	RAIL,HMD,TOP,122.688	BTL00537	1
19	RAIL,HMD,MID,41.875	BTL00538	3
20	RAIL,HMD,TOP/MID,17.313	BTL00539	2
21	RAIL,PLT,12GA,5.500X1.500	BTL00546	2
22	BRKT,TOEKICK,L,4.00X1.50	BTL00547	1
23	CHNL,SHIP,3.50X1.25,12GA,31.00	BTL00545	2
24	PLATE,KICKER,1/4T,3/8B	BTL00038	1
25	BRACE,KICKER,TOP ACCESS	BTL00037	2
26	PLATE,SPACER,8.625X4.875,1/2T	BTL00039	3
27	CLAMP,4"-5" TUBE,LDR,3/8B	BTL00041	4
28	BRKT,KICKER,1/4T,14.00DEG,3/8B	BTL00540	1
29	BRACE,KICKER,SHORT,56.455	BTL00544	1
30	GATE,SAFETY,PLATFORM,ASY	V80005	1
31	SCREW,5/16-18,3/4",PLT,GR5,HHWZ	J0536	96
32	NUT, WHIZ, 5/16-18	J1110	96
33	SCREW,1/2-13,1.00,PLT,GR5,HHWZ	J07252	30
34	NUT,1/2-13,PLT,GR5,FLANGE	J10401	30

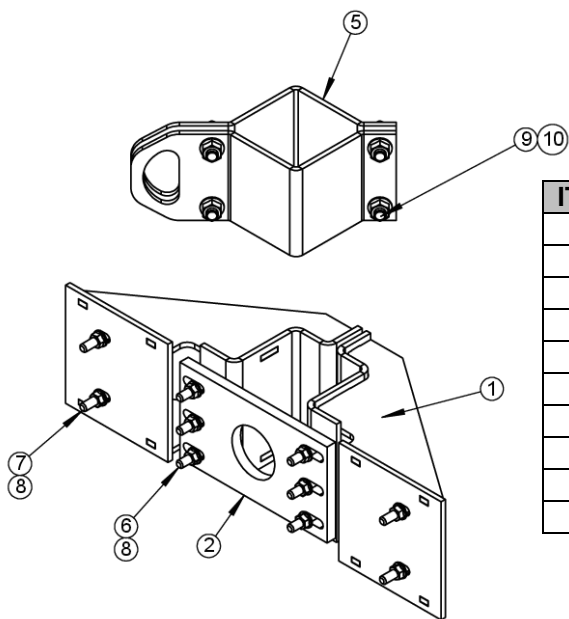
ACCESS PLATFORM, LEFT (BTL0054)

ITEMS NOT SHOWN ARE IN
HARDWARE PACKAGE BTL0053H

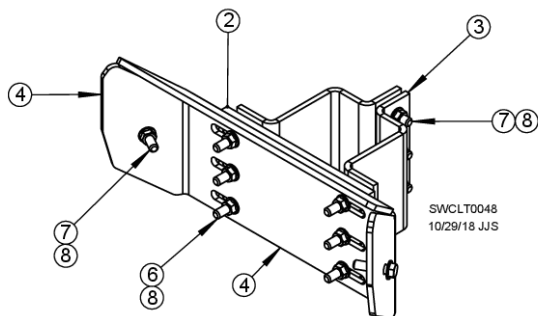
ITEM #	DESCRIPTION	PART #	QTY.
1	CHNL,MAIN,7X3.625,119.875	BTL00530	1
2	CHNL,BACK,7X2.50,119.875	BTL00531	1
3	CHNL,SIDE,6.83X2.50,8GA,31.666	BTL00252	4
4	POST,GRDRL,8GA,1/2B,49.563	BT51249	9
5	PLATE,PLANK BRKT,5.250X74.750	BTL00533	1
6	BRKT,L,PLANK,3.625X1.875,44.00	BTL00534	1
7	TOEKICK,L,6.00X3.625,74.750	BTL00535	1
8	TOEKICK,L,6.00X3.625,44.000	BTL00536	1
9	TOEKICK,L,6.00X3.00,31.000	BTL00542	2
10	TOEKICK,C,5.813X1.250,13.625	BTL00543	1
11	SPLICE PLATE,TOEKICK,PLTFRM	BT55008	1
12	CORNER SPLICE PLATE,PLATFORM	BT54519	2
13	PLANK,31.00L,14.50W,1.875H	BTL00532	3
14	PLANK,34.50L,12.25W,1.875H	BTL00541	6
15	RAIL,HMD,TOP,30.988,5/16B	BTL00030	2
16	RAIL,HMD,MID,30.988,5/16B	BTL00031	2
17	GUARDRAIL,FLT,8GA,3.625,5/16B	BTL00033	2
18	RAIL,HMD,TOP,122.688	BTL00537	1
19	RAIL,HMD,MID,41.875	BTL00538	3
20	RAIL,HMD,TOP/MID,17.313	BTL00539	2
21	RAIL,PLT,12GA,5.500X1.500	BTL00546	2
22	BRKT,TOEKICK,L,4.00X1.50	BTL00547	1
23	CHNL,SHIP,3.50X1.25,12GA,31.00	BTL00545	2
24	PLATE,KICKER,1/4T,3/8B	BTL00038	1
25	BRACE,KICKER,TOP ACCESS	BTL00037	2
26	PLATE,SPACER,8.625X4.875,1/2T	BTL00039	3
27	CLAMP,4"-5" TUBE,LDR,3/8B	BTL00041	4
28	BRKT,KICKER,1/4T,14.00DEG,3/8B	BTL00540	1
29	BRACE,KICKER,SHORT,56.455	BTL00544	1
30	GATE,SAFETY,PLATFORM,ASY	V80005	1
31	SCREW,5/16-18,3/4",PLT,GR5,HHWZ	J0536	96
32	NUT, WHIZ, 5/16-18	J1110	96
33	SCREW,1/2-13,1.00,PLT,GR5,HHWZ	J07252	30
34	NUT,1/2-13,PLT,GR5,FLANGE	J10401	30



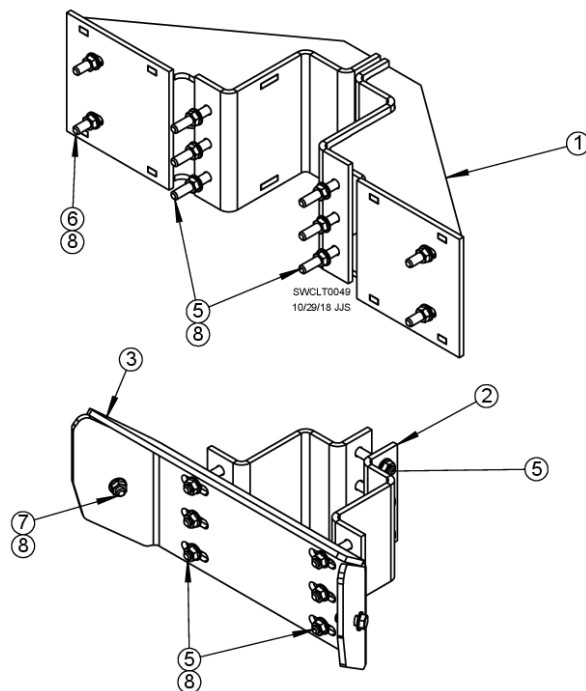
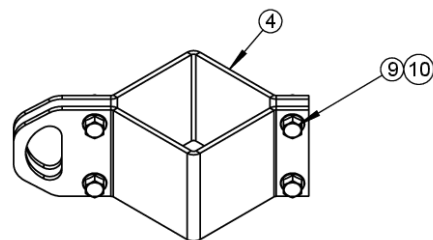
REST PLATFORM ATTACHMENT KITS **(4" TUBE, BTL0032) (5" TUBE, BTL0033)**



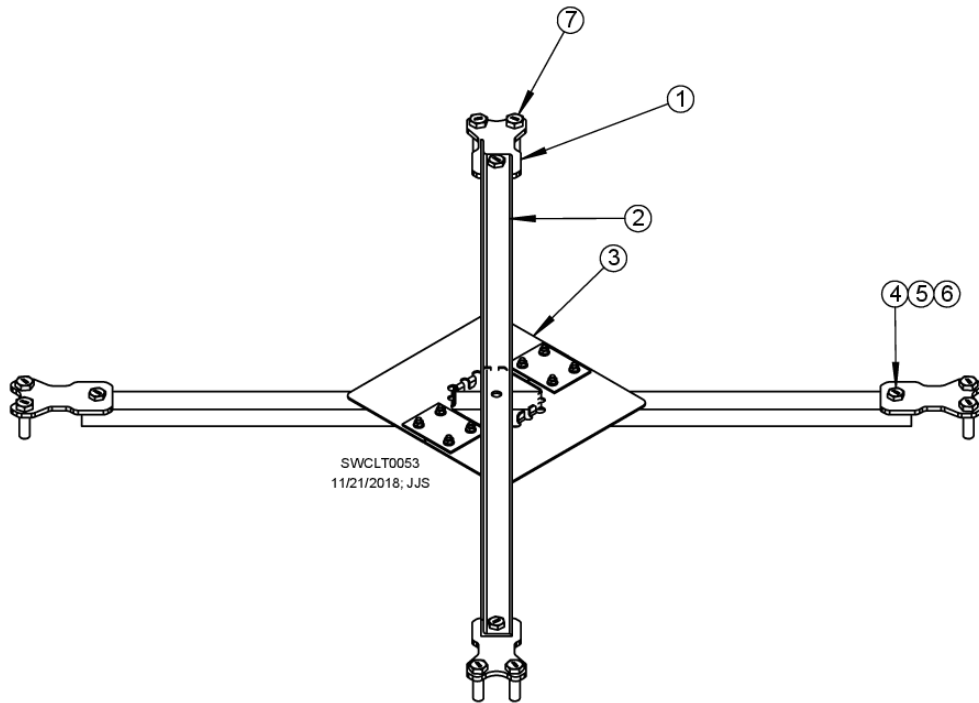
ITEM #	DESCRIPTION	PART #	QTY.
1	CLAMP,WLD,4" TUBE,PLTFRM,3/8B	BTL0030	2
2	PLATE,SPACER,8.625X4.875,1/2T	BTL00039	2
3	CLAMP,4"-5" TUBE,LDR,3/8B	BTL00041	2
4	PLATE,KICKER,1/4T,3/8B	BTL0026	1
5	CLAMP,TIE OFF BRKT,4" TUBE	BTL00320	2
6	SCREW,3/8-16,2.25,PLT,GR8,HHWZ	J06115	12
7	SCREW,3/8-16,1.50,PLT,GR8,HHWZ	J06113	12
8	NUT,3/8-16 FLANGE WHIZLOK	J1017	24
9	SCREW,1/2-13,1.50,PLT,GR5,HHWZ	J07302	4
10	NUT,1/2-13,PLT,GR5,FLANGE	J10401	4



ITEM #	DESCRIPTION	PART #	QTY.
1	CLAMP,WLD,5" TUBE,PLTFRM,3/8B	BTL0031	2
2	CLAMP,4"-5" TUBE,LDR,3/8B	BTL00041	2
3	PLATE,KICKER,1/4T,3/8B	BTL0026	1
4	CLAMP,TIE OFF BRKT,5" TUBE	BTL00330	2
5	SCREW,3/8-16,2.25,PLT,GR8,HHWZ	J06115	15
6	SCREW,3/8-16,1.50,PLT,GR8,HHWZ	J06113	7
7	SCREW,3/8-16,1.00,GR8,HHWZ	J0611	2
8	NUT,3/8-16 FLANGE WHIZLOK	J1017	24
9	SCREW,1/2-13,1.50,PLT,GR5,HHWZ	J07302	4
10	NUT,1/2-13,PLT,GR5,FLANGE	J10401	4

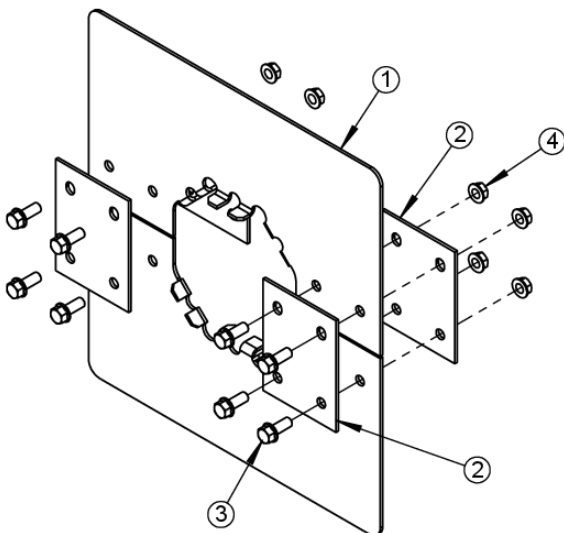


INTERNAL BRACING KIT BT60028G, 8" LOOP



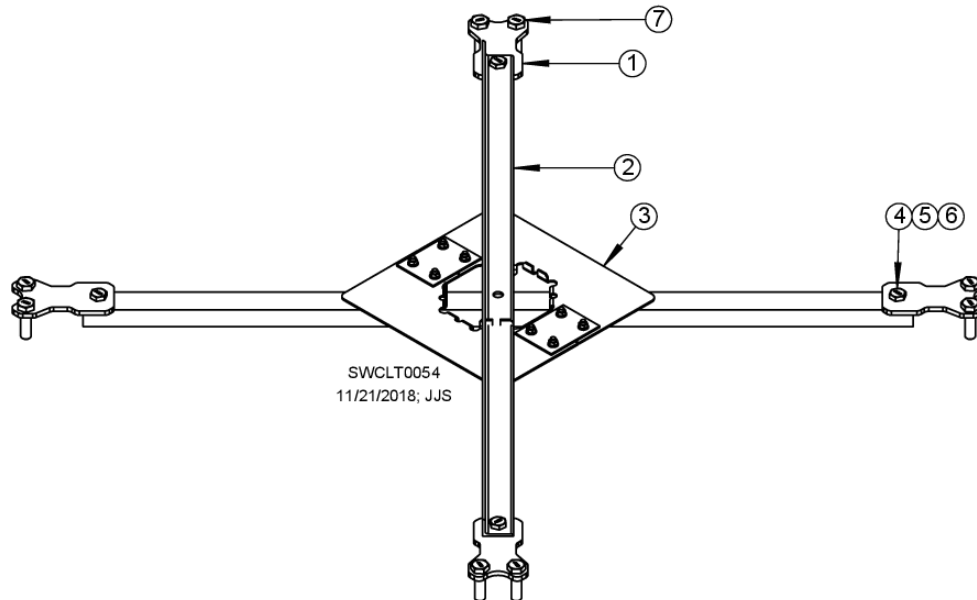
ITEM #	DESCRIPTION	PART #	QTY.
1	TOWER,ELEV TIE BACK BRKT	BT10026	4
2	BRACE,INTERNAL,3X2X1/4,80.500	BT60001	2
3	COLLAR,8" TUBE	BT60027	1
4	BOLT,7/8-9,2.00,A325,STRUC	J08254	4
5	WASHER,FLAT,7/8",ASTM F436	J11312	4
6	NUT,7/8-9,A563 GRADE DH	J10583	4
7	BOLT,1-8,3.5,A325,STRUC	J09092	8

COLLAR, BT60027



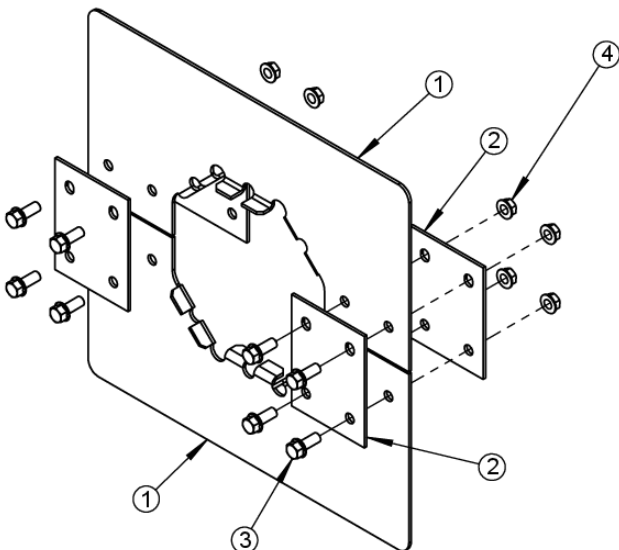
ITEM #	DESCRIPTION	PART #	QTY.
1	PLATE,COLLAR,8" TUBE,1/2B	BT60026	2
2	COLLAR SPLICE PLATE,8-12" TUBE	BT60022	4
3	SCREW,1/2-13,1.25,PLT,GR5,HHWZ	J07282	8
4	NUT,1/2*13,PLT,GR5,FLANGE	J10401	8

INTERNAL BRACING KIT BT60029 G, 10" LOOP



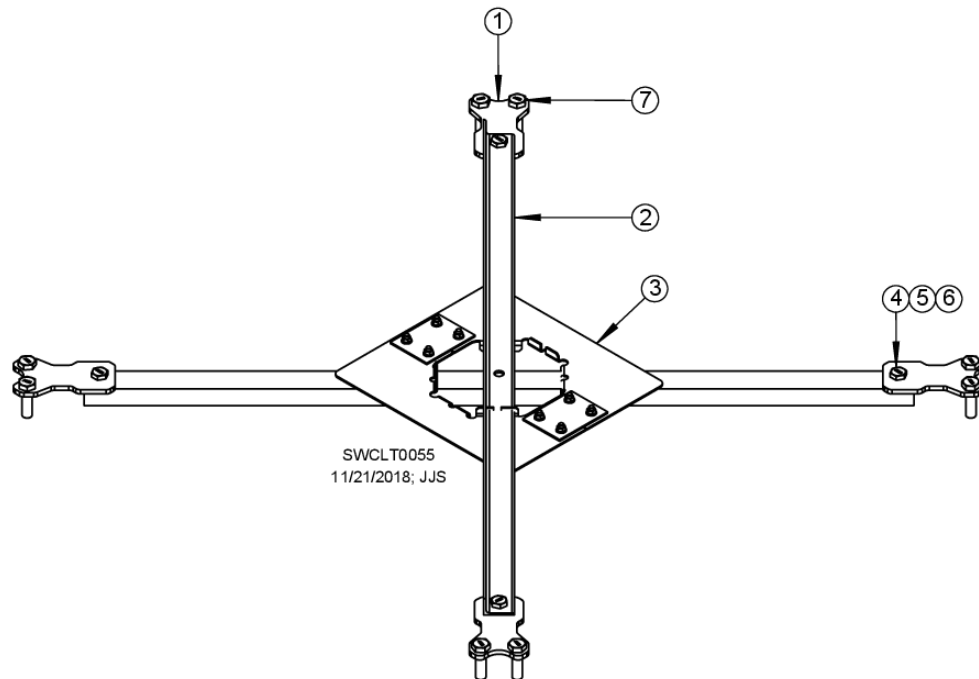
ITEM #	DESCRIPTION	PART #	QTY.
1	TOWER,ELEV TIE BACK BRKT	BT10026	4
2	BRACE,INTERNAL,3X2X1/4,80.500	BT60001	2
3	COLLAR,10" TUBE	BT60025	1
4	BOLT,7/8-9,2.00,A325,STRUC	J08254	4
5	WASHER,FLAT,7/8",ASTM F436	J11312	4
6	NUT,7/8-9,A563 GRADE DH	J10583	4
7	BOLT,1-8,3.5,A325,STRUC	J09092	8

COLLAR, BT60025



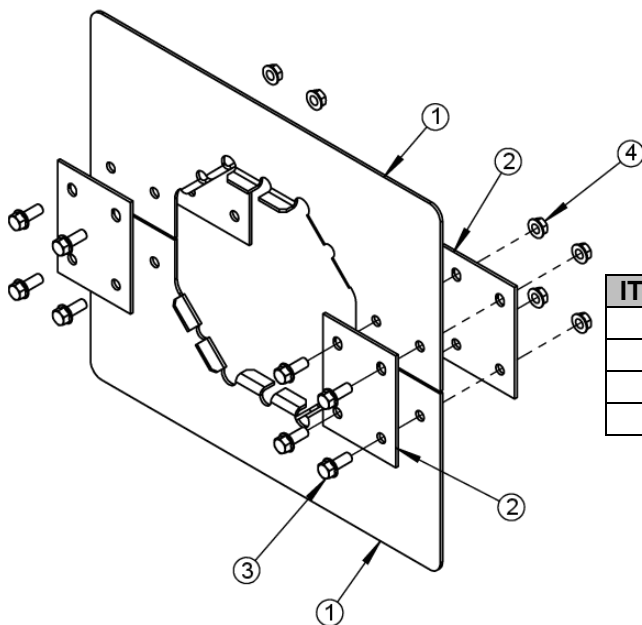
ITEM #	DESCRIPTION	PART #	QTY.
1	PLATE,COLLAR,10" TUBE,1/2B	BT60024	2
2	COLLAR SPLICE PLATE,8-12" TUBE	BT60022	4
3	SCREW,1/2-13,1.25,PLT,GR5,HHWZ	J07282	8
4	NUT,1/2*13,PLT,GR5,FLANGE	J10401	8

INTERNAL BRACING KIT BT60020 G, 12" LOOP



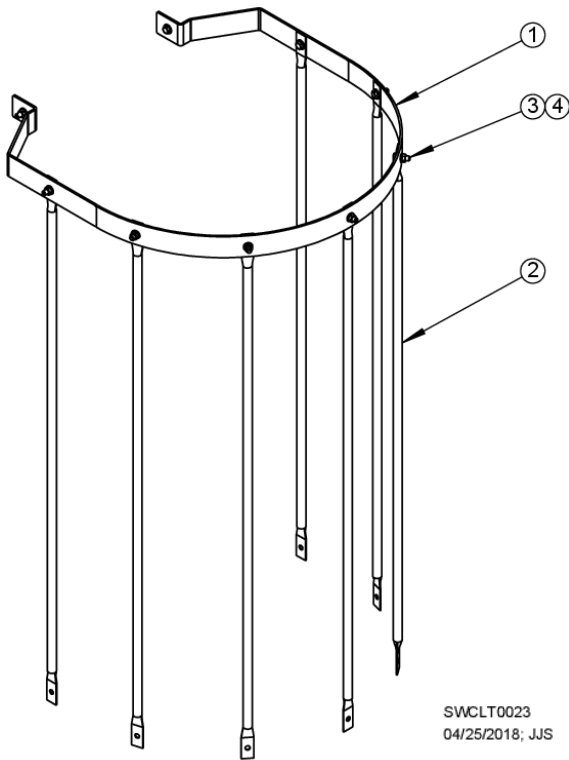
ITEM #	DESCRIPTION	PART #	QTY.
1	TOWER,ELEV TIE BACK BRKT	BT10026	4
2	BRACE,INTERNAL,3X2X1/4,80.500	BT60001	2
3	COLLAR,12" TUBE	BT60023	1
4	BOLT,7/8-9,2.00,A325,STRUC	J08254	4
5	WASHER,FLAT,7/8",ASTM F436	J11312	4
6	NUT,7/8-9,A563 GRADE DH	J10583	4
7	BOLT,1-8,3.5,A325,STRUC	J09092	8

COLLAR, BT60023



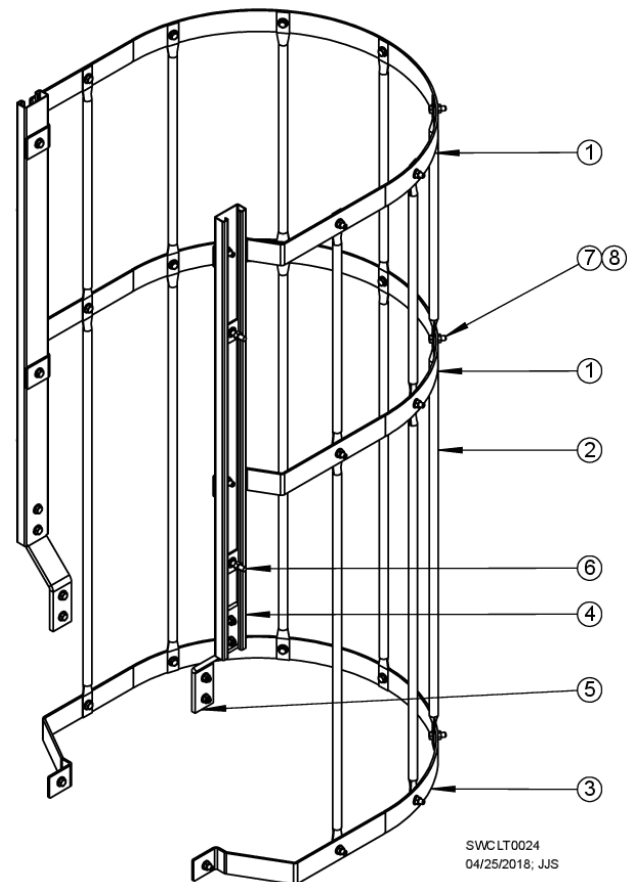
ITEM #	DESCRIPTION	PART #	QTY.
1	PLATE,COLLAR,12" TUBE,1/2B	BT60021	2
2	COLLAR SPLICE PLATE ,8-12" TUBE	BT60022	4
3	SCREW,1/2-13,1.25,PLT,GR5,HHWZ	J07282	8
4	NUT,1/2*13,PLT,GR5,FLANGE	J10401	8

SAFETY CAGES



4' STANDARD (V07210)

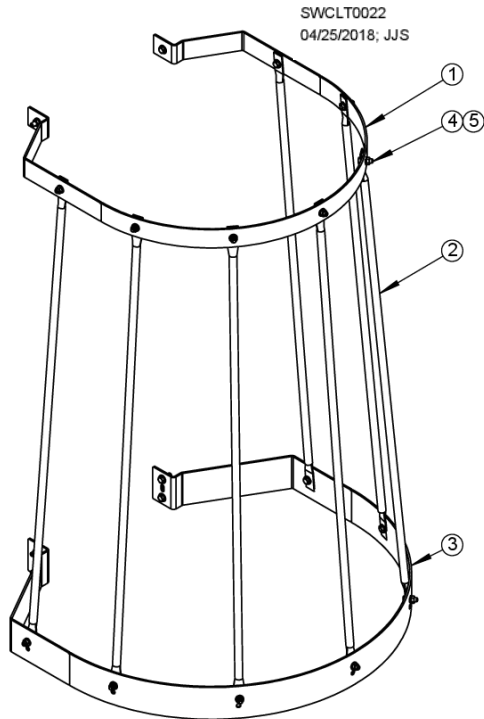
ITEM #	DESCRIPTION	PART #	QTY.
1	D-RING, STANDARD	B5085	1
2	UPRIGHT, 4'	V07204	7
3	SCREW, 3/8-16, 1.00, PLT, GR8, HHWZ	J0611	6
4	NUT, 3/8-16 FLANGE WHIZLOCK	J1017	6



LADDER STEP-THROUGH (BTL0022)

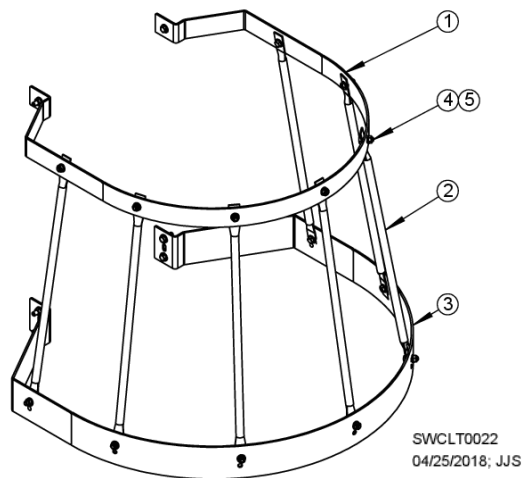
ITEM #	DESCRIPTION	PART #	QTY.
1	D-RING, LADDER EXTENSION	B5089	2
2	UPRIGHT, PLATFORM	B5092	7
3	D-RING, STANDART	B5085	1
4	EXTENSION, LADDER, EAVE	B5080	2
5	BRKT, EXTENSION, LADDER	B5081	2
6	CLIP AND BOLT, LADDER	B50081	4
7	SCREW, 3/8-16, 1.00, PLT, GR8, HHWZ	J0611	35
8	NUT, 3/8-16 FLANGE WHIZLOCK	J1017	35

Parts/Assemblies



4' FLARED (V07211)

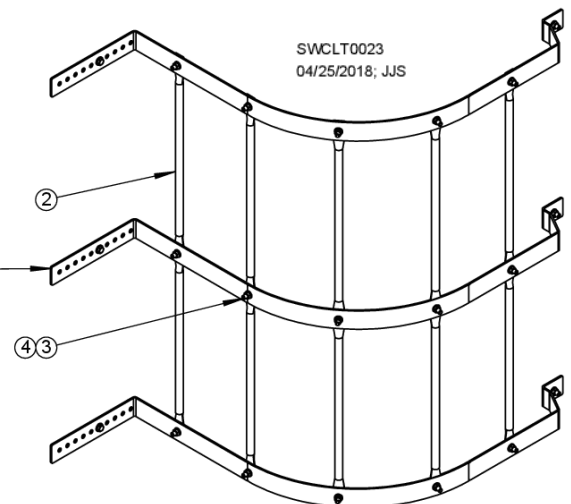
ITEM #	DESCRIPTION	PART #	QTY.
1	D-RING, STANDARD	B5085	1
2	UPRIGHT, 4'	V07204	7
3	D-RING, FLARED	B5086	1
4	SCREW, 3/8-16, 1.00, PLT, GR8, HHWZ	J0611	20
5	NUT, 3/8-16 FLANGE WHIZLOCK	J1017	20



2' FLARED (V07213)

ITEM #	DESCRIPTION	PART #	QTY.
1	D-RING, STANDARD	B5085	1
2	UPRIGHT, 2'	V07212	7
3	D-RING, FLARED	B5086	1
4	SCREW, 3/8-16, 1.00, PLT, GR8, HHWZ	J0611	20
5	NUT, 3/8-16 FLANGE WHIZLOCK	J1017	20

ITEM #	DESCRIPTION	PART #	QTY.
1	D-RING, LADDER EXTENSION, HALF	B5088	3
2	UPRIGHT, PLATFORM	V07217	5
3	SCREW, 3/8-16, 1.00, PLT, GR8, HHWZ	J0611	21
4	NUT, 3/8-16 FLANGE WHIZLOCK	J1017	21



PLATFORM CAGE (BTL0018)

NOTES



Contact Information

Contact Information

Owner's manuals are available from Sukup and additional copies can be requested at address, phone number, or e-mail address shown below. Please indicate manual number L25062 when requesting Support Tower for Chain Loop Conveyor Assembly and Owner's Manual.

Sukup Dealer Information

Dealer name:	_____
Address:	_____
Cell phone:	_____
Office phone:	_____
Fax:	_____

Emergencies – Know What to Do

Have emergency numbers and written directions to work site readily available in case of emergency. A place for emergency phone numbers to be recorded has been provided below.

Ambulance • Fire • Police: 9-1-1
Bin rescue team: _____
Emergency medical squad: _____
911 Address of work site: _____
Directions to work site: _____



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