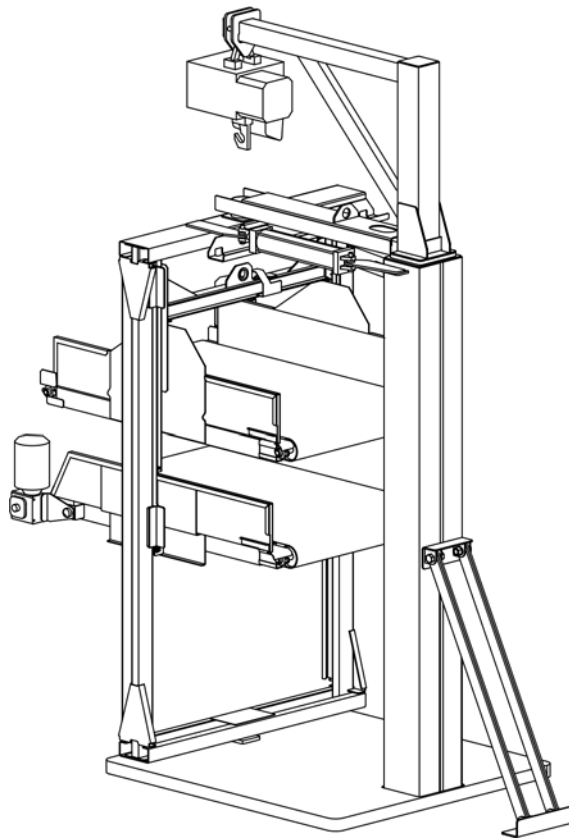




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# Mechanical Parts and Service

## CORFN\_ Elevating and Rotating Cake Shuttles





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# 1 General Service Information

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## **PELLERIN MILNOR CORPORATION LIMITED STANDARD WARRANTY**

We warrant to the original purchaser that MILNOR machines including electronic hardware/software (hereafter referred to as "equipment"), will be free from defects in material and workmanship for a period of one year from the date of shipment (unless the time period is specifically extended for certain parts pursuant to a specific MILNOR published extended warranty) from our factory with no operating hour limitation. This warranty is contingent upon the equipment being installed, operated and serviced as specified in the operating manual supplied with the equipment, and operated under normal conditions by competent operators.

Providing we receive written notification of a warranted defect within 30 days of its discovery, we will—at our option—repair or replace the defective part or parts, EX Factory (labor and freight specifically NOT included). We retain the right to require inspection of the parts claimed defective in our factory prior to repairing or replacing same. We will not be responsible, or in any way liable, for unauthorized repairs or service to our equipment, and this warranty shall be void if the equipment is tampered with, modified, or abused, used for purposes not intended in the design and construction of the machine, or is repaired or altered in any way without MILNOR's written consent.

Parts damaged by exposure to weather, to aggressive water, or to chemical attack are not covered by this warranty. For parts which require routine replacement due to normal wear—such as gaskets, contact points, brake and clutch linings, belts, hoses, and similar parts—the warranty time period is 90 days.

We reserve the right to make changes in the design and/or construction of our equipment (including purchased components) without obligation to change any equipment previously supplied.

ANY SALE OR FURNISHING OF ANY EQUIPMENT BY MILNOR IS MADE ONLY UPON THE EXPRESS UNDERSTANDING THAT MILNOR MAKES NO EXPRESSED OR IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR USE OR PURPOSE OR ANY OTHER WARRANTY IMPLIED BY LAW INCLUDING BUT NOT LIMITED TO REDHIBITION. MILNOR WILL NOT BE RESPONSIBLE FOR ANY COSTS OR DAMAGES ACTUALLY INCURRED OR REQUIRED AS A RESULT OF: THE FAILURE OF ANY OTHER PERSON OR ENTITY TO PERFORM ITS RESPONSIBILITIES, FIRE OR OTHER HAZARD, ACCIDENT, IMPROPER STORAGE, MIS-USE, NEGLIGENCE, POWER OR ENVIRONMENTAL CONTROL MALFUNCTIONS, DAMAGE FROM LIQUIDS, OR ANY OTHER CAUSE BEYOND THE NORMAL RANGE OF USE. REGARDLESS OF HOW CAUSED, IN NO EVENT SHALL MILNOR BE LIABLE FOR SPECIAL, INDIRECT, PUNITIVE, LIQUIDATED, OR CONSEQUENTIAL COSTS OR DAMAGES, OR ANY COSTS OR DAMAGES WHATSOEVER WHICH EXCEED THE PRICE PAID TO MILNOR FOR THE EQUIPMENT IT SELLS OR FURNISHES.

THE PROVISIONS ON THIS PAGE REPRESENT THE ONLY WARRANTY FROM MILNOR AND NO OTHER WARRANTY OR CONDITIONS, STATUTORY OR OTHERWISE, SHALL BE IMPLIED.

WE NEITHER ASSUME, NOR AUTHORIZE ANY EMPLOYEE OR OTHER PERSON TO ASSUME FOR US, ANY OTHER RESPONSIBILITY AND/OR LIABILITY IN CONNECTION WITH THE SALE OR FURNISHING OF OUR EQUIPMENT TO ANY BUYER.

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## How to Get the Necessary Repair Components

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You can get components to repair your machine from the approved supplier where you got this machine. Your supplier will usually have the necessary components in stock. You can also get components from the Milnor® factory.

Tell the supplier the machine model and serial number and this data for each necessary component:

- The component number from this manual
- The component name if known
- The necessary quantity
- The necessary transportation requirements
- If the component is an electrical component, give the schematic number if known.
- If the component is a motor or an electrical control, give the nameplate data from the used component.

To write to the Milnor® factory:

Pellerin Milnor Corporation  
 Post Office Box 400  
 Kenner, LA 70063-0400  
 UNITED STATES

Telephone: 504-712-7775

Fax: 504-469-9777

Email: parts@milnor.com

## Trademarks

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These words are trademarks of Pellerin Milnor® Corporation and other entities:

**Table 1. Trademarks**

AutoSpot™	GreenFlex™	MilMetrix®	PulseFlow®
CBW®	GearTrace™	MilTouch™	RAM Command™
Drynet™	GreenTurn™	MilTouch-EX™	RecircONE®
E-P Express®	Hydro-cushion™	MILRAIL™	RinSave®
E-P OneTouch®	Mentor®	Miltrac™	SmoothCoil™
E-P Plus®	Mildata®	PBW™	Staph Guard®
Gear Guardian®	Milnor®		



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## Safety — Shuttle Conveyors

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### Safety Alert Messages—Internal Electrical and Mechanical Hazards

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The following are instructions about hazards inside the machine and in electrical enclosures.



**WARNING: Electrocutation and Electrical Burn Hazards** — Contact with electric power can kill or seriously injure you. Electric power is present inside the cabinetry unless the main machine power disconnect is off.



- ▶ Do not unlock or open electric box doors.
- ▶ Do not remove guards, covers, or panels.
- ▶ Do not reach into the machine housing or frame.
- ▶ Keep yourself and others off of machine.
- ▶ Know the location of the main machine disconnect and use it in an emergency to remove all electric power from the machine.



**WARNING: Entangle and Crush Hazards** — Contact with moving components normally isolated by guards, covers, and panels, can entangle and crush your limbs. These components move automatically.



- ▶ Do not remove guards, covers, or panels.
- ▶ Do not reach into the machine housing or frame.
- ▶ Keep yourself and others off of machine.
- ▶ Know the location of all emergency stop switches, pull cords, and/or kick plates and use them in an emergency to stop machine motion.

### Safety Alert Messages—External Mechanical Hazards

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The following are instructions about hazards around the front, sides, rear or top of the machine.



**CAUTION: Strike and Crush Hazards** — A traveling machine such as a shuttle can strike, crush, or entrap you if you ride on it or enter its path. Traveling machines or their components can move automatically in any direction. Placing a system machine on line by energizing the machine control may immediately summon a shuttle or other traveling machine.



- ▶ Keep yourself and others off of machine.
- ▶ Keep yourself and others clear of movement areas and paths.
- ▶ Understand the consequences of placing a system machine on line.
- ▶ Know the location of all emergency stop switches, pull cords, and/or kick plates and use them in an emergency to stop machine motion.

- ▶ Know the location of the main machine disconnect and use it in an emergency to remove all electric power from the machine.



**CAUTION: Crush and Entrap Hazards** — A traveling machine such as a shuttle can crush or entrap you if the bed or bucket descends while you are under it. The bed or bucket can descend with power off or on.



- ▶ Keep yourself and others clear of movement areas and paths.



**WARNING: Fall, Entangle, and Strike Hazards** — Machine motion can cause you to fall or become entangled in or struck by nearby objects if you stand, walk, or ride on the machine. Shuttles and conveyor belts move automatically.



- ▶ Keep yourself and others off of machine.

## Safety Alert Messages—Unsafe Conditions

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### Damage and Malfunction Hazards

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### Hazards Resulting from Inoperative Safety Devices

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**WARNING: Multiple Hazards** — Operating the machine with an inoperative safety device can kill or injure personnel, damage or destroy the machine, damage property, and/or void the warranty.

- ▶ Do not tamper with or disable any safety device or operate the machine with a malfunctioning safety device. Request authorized service.



**WARNING: Electrocution and Electrical Burn Hazards** — Electric box doors—Operating the machine with any electric box door unlocked can expose high voltage conductors inside the box.



- ▶ Do not unlock or open electric box doors.



**WARNING: Entangle and Crush Hazards** — Guards, covers, and panels—Operating the machine with any guard, cover, or panel removed exposes moving components.



- ▶ Do not remove guards, covers, or panels.

## Hazards Resulting from Damaged Mechanical Devices

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**WARNING: Multiple Hazards** — Operating a damaged machine can kill or injure personnel, further damage or destroy the machine, damage property, and/or void the warranty.

- ▶ Do not operate a damaged or malfunctioning machine. Request authorized service.



**WARNING: Crush Hazards** — Chain and hoist—A broken chain or a malfunctioning hoist can permit the belt/bucket assembly to fall or descend.

- ▶ Do not operate the machine with any evidence of damage or malfunction.

## Careless Use Hazards

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### Careless Operation Hazards—Vital Information for Operator Personnel (see also operator hazards throughout manual)

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**WARNING: Multiple Hazards** — Careless operator actions can kill or injure personnel, damage or destroy the machine, damage property, and/or void the warranty.

- ▶ Do not tamper with or disable any safety device or operate the machine with a malfunctioning safety device. Request authorized service.
- ▶ Do not operate a damaged or malfunctioning machine. Request authorized service.
- ▶ Do not attempt unauthorized servicing, repairs, or modification.
- ▶ Do not use the machine in any manner contrary to the factory instructions.
- ▶ Use the machine only for its customary and intended purpose.
- ▶ Understand the consequences of operating manually.



**CAUTION: Goods Damage and Wasted Resources** — Entering incorrect cake data causes improper processing, routing, and accounting of batches.

- ▶ Understand the consequences of entering cake data.



**WARNING: Strike and Crush Hazards** — Carelessly moving the machine with manual controls can cause it to strike, crush, entrap, or entangle personnel. You have total control of machine movement immediately after setting the Manual/Automatic switch to manual.

- ▶ Keep yourself and others clear of movement areas and paths.
- ▶ Understand the consequences of operating manually.



## Careless Servicing Hazards—Vital Information for Service Personnel (see also service hazards throughout manuals)

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**WARNING: Electrocution and Electrical Burn Hazards** — Contact with electric power can kill or seriously injure you. Electric power is present inside the cabinetry unless the main machine power disconnect is off.



- ▶ Do not service the machine unless qualified and authorized. You must clearly understand the hazards and how to avoid them.
- ▶ Abide by the current OSHA lockout/tagout standard when lockout/tagout is called for in the service instructions. Outside the USA, abide by the OSHA standard in the absence of any other overriding standard.



**WARNING: Entangle and Crush Hazards** — Contact with moving components normally isolated by guards, covers, and panels, can entangle and crush your limbs. These components move automatically.



- ▶ Do not service the machine unless qualified and authorized. You must clearly understand the hazards and how to avoid them.
- ▶ Abide by the current OSHA lockout/tagout standard when lockout/tagout is called for in the service instructions. Outside the USA, abide by the OSHA standard in the absence of any other overriding standard.



**WARNING: Crush and Entrap Hazards** — A traveling machine such as a shuttle can crush or entrap you if the bed or bucket descends while you are under it. The bed or bucket can descend with power off or on.



- ▶ Secure both red safety pins in accordance with the instructions furnished, then lock out and tag out power at the main machine disconnect before working under bed or bucket.



**WARNING: Strike and Crush Hazards** — A traveling machine such as a shuttle can strike, crush, or entrap you if you ride on it or enter its path. Traveling machines or their components can move automatically in any direction. Placing a system machine on line by energizing the machine control may immediately summon a shuttle or other traveling machine.



- ▶ Lock out and tag out power to the traveling machine at the main machine disconnect if you must work in the path of the traveling machine.

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## Torque Requirements for Fasteners

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The document about the assembly gives the torque requirements for other fasteners. **If fastener torque specifications or threadlocker requirements in an assembly document are different from this document, use the assembly document.**

**Figure 1. The Bolts in Milnor® Equipment**

The Marks on Bolt Heads	Legend
	<p><b>A</b> . . . SAE Grades 1 and 2, ASTM A307, and stainless steel</p> <p><b>B</b> . . . Grade BC, ASTM A354</p> <p><b>C</b> . . . SAE Grade 5, ASTM A449</p> <p><b>D</b> . . . SAE Grade 8 and ASTM A354 BD</p>

## Torque Values

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These tables give the standard dimension, grade, threadlocker, and torque requirements for fasteners frequently used on Milnor® equipment.



**NOTE:** Data from the Pellerin Milnor® Corporation “Bolt Torque Specification” (bolt\_torque\_milnor.xls/2002096).

## Fasteners Made of Carbon Steel

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### Without a Threadlocker

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**Table 2. Torque Values for Standard Fasteners with Maximum 5/16-inch Diameters and No Lubricant**

Dimension	The Grade of the Bolt							
	Grade 2		Grade 5		Grade 8		Grade BC	
	Pound-Inches	N-m	Pound-Inches	N-m	Pound-Inches	N-m	Pound-Inches	N-m
1/4 x 20	66	7	101	11	143	16	126	14
1/4 x 28	76	9	116	13	163	18	–	–
5/16 x 18	136	15	209	24	295	33	258	29
5/16 x 24	150	17	232	26	325	37	–	–

**Table 3. Torque Values for Standard Fasteners Larger Than 5/16-inch Diameters and No Lubricant**

Dimension	The Grade of the Bolt							
	Grade 2		Grade 5		Grade 8		Grade BC	
	Pound-Feet	N-m	Pound-Feet	N-m	Pound-Feet	N-m	Pound-Feet	N-m
3/8 x 16	20	27	31	42	44	59	38	52
3/8 x 24	23	31	35	47	50	68	–	–
7/16 x 14	32	43	49	66	70	95	61	83
7/16 x 20	36	49	55	75	78	105	–	–
1/2 x 13	49	66	75	102	107	145	93	126
1/2 x 20	55	75	85	115	120	163	–	–
9/16 x 12	70	95	109	148	154	209	134	182
9/16 x 18	78	106	121	164	171	232	–	–
5/8 x 11	97	131	150	203	212	287	186	252
5/8 x 18	110	149	170	231	240	325	–	–
3/4 x 10	172	233	266	361	376	510	329	446

**Table 3 Torque Values for Standard Fasteners Larger Than 5/16-inch Diameters and No Lubricant (cont'd.)**

Dimension	The Grade of the Bolt							
	Grade 2		Grade 5		Grade 8		Grade BC	
	Pound-Feet	N-m	Pound-Feet	N-m	Pound-Feet	N-m	Pound-Feet	N-m
3/14 x 16	192	261	297	403	420	569	–	–
7/8 x 9	167	226	429	582	606	821	531	719
7/8 x 14	184	249	473	641	668	906	–	–
1 x 8	250	339	644	873	909	1232	796	1079
1 x 12	274	371	704	954	994	1348	–	–
1 x 14	281	381	723	980	1020	1383	–	–
1 1/8 x 7	354	480	794	1077	1287	1745	1126	1527
1 1/8 x 12	397	538	891	1208	1444	1958	–	–
1 1/4 x 7	500	678	1120	1519	1817	2464	1590	2155
1 1/4 x 12	553	750	1241	1682	2012	2728	–	–
1 3/8 x 6	655	888	1469	1992	2382	3230	2085	2827
1 3/8 x 12	746	1011	1672	2267	2712	3677	–	–
1 1/2 x 6	869	1178	1949	2642	3161	4286	2767	3751
1 1/2 x 12	979	1327	2194	2974	3557	4822	–	–

**Table 4. Torque Values for Plated Fasteners with Maximum 5/16-inch Diameters and No Lubricant**

Dimension	The Grade of the Bolt							
	Grade 2		Grade 5		Grade 8		Grade BC	
	Pound-Inches	N-m	Pound-Inches	N-m	Pound-Inches	N-m	Pound-Inches	N-m
1/4 x 20	49	6	76	9	107	12	95	11
1/4 x 28	56	6	88	10	122	14	–	–
5/16 x 18	102	12	156	18	222	25	193	22
5/16 x 24	113	13	174	20	245	28	–	–

**Table 5. Torque Values for Plated Fasteners Larger Than 5/16-inch Diameters and No Lubricant**

Dimension	The Grade of the Bolt							
	Grade 2		Grade 5		Grade 8		Grade BC	
	Pound-Feet	N-m	Pound-Feet	N-m	Pound-Feet	N-m	Pound-Feet	N-m
3/8 x 16	15	20	23	31	33	44	29	38
3/8 x 24	17	23	26	35	37	49	–	–
7/16 x 14	24	32	37	50	52	71	46	61
7/16 x 20	27	36	41	55	58	78	–	–
1/2 x 13	37	49	56	76	80	106	70	93
1/2 x 20	41	55	64	85	90	120	–	–
9/16 x 12	53	70	81	110	115	153	101	134
9/16 x 18	59	79	91	122	128	174	–	–
5/8 x 11	73	97	113	150	159	212	139	186
5/8 x 18	83	110	127	172	180	240	–	–
3/4 x 10	129	173	200	266	282	376	246	329
3/14 x 16	144	192	223	297	315	420	–	–
7/8 x 9	125	166	322	430	455	606	398	531
7/8 x 14	138	184	355	474	501	668	–	–
1 x 8	188	250	483	644	682	909	597	796
1 x 12	205	274	528	716	746	995	–	–
1 x 14	210	280	542	735	765	1037	–	–
1 1/8 x 7	266	354	595	807	966	1288	845	1126
1 1/8 x 12	298	404	668	890	1083	1444	–	–
1 1/4 x 7	375	500	840	1120	1363	1817	1192	1590

**Table 5 Torque Values for Plated Fasteners Larger Than 5/16-inch Diameters and No Lubricant (cont'd.)**

Dimension	The Grade of the Bolt							
	Grade 2		Grade 5		Grade 8		Grade BC	
	Pound-Feet	N-m	Pound-Feet	N-m	Pound-Feet	N-m	Pound-Feet	N-m
1 1/4 x 12	415	553	930	1261	1509	2013	–	–
1 3/8 x 6	491	655	1102	1470	1787	2382	1564	2085
1 3/8 x 12	559	758	1254	1672	2034	2712	–	–
1 1/2 x 6	652	870	1462	1982	2371	3161	2075	2767
1 1/2 x 12	733	994	1645	2194	2668	3557	–	–

**With a Threadlocker**

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**Table 6. Threadlocker by the Diameter of the Bolt (see below Note )**

LocTite Product	Dimension			
	1/4-inch	1/4- to 5/8-inch	5/8- to 7/8-inch	1-inch +
LocTite 222	OK			
LocTite 242		OK		
LocTite 262			OK	
LocTite 272			High temperature	
LocTite 277				OK



**NOTE:** The acceptable bolt size ranges for various LocTite® threadlocking products is the LocTite manufacturer’s **general** recommendation. Specific applications sometime require that a LocTite product is applied to a bolt size outside the ranges shown here. For example, Milnor® specifies LocTite 242 for use on certain 1" bolt applications and has confirmed this usage with the LocTite manufacturer. You may see variances such as this in the documentation for specific machine assemblies.

**Table 7. Torque Values if You Apply LocTite 222**

Dimension	The Grade of the Bolt							
	Grade 2		Grade 5		Grade 8		Grade BC	
	Pound-Inches	N-m	Pound-Inches	N-m	Pound-Inches	N-m	Pound-Inches	N-m
1/4 x 20	60	7	96	11	132	15	108	12
1/4 x 28	72	8	108	12	144	16	–	–

**Table 8. Torque Values if You Apply LocTite 242**

Dimension	The Grade of the Bolt							
	Grade 2		Grade 5		Grade 8		Grade BC	
	Pound-Feet	N-m	Pound-Feet	N-m	Pound-Feet	N-m	Pound-Feet	N-m
5/16 x 18	11	15	17	23	25	34	22	30
5/16 x 24	13	18	19	26	27	37	27	37
3/8 x 16	20	27	31	42	44	60	38	52
3/8 x 24	23	31	35	47	50	68	–	–
7/16 x 14	32	43	49	66	70	95	61	83
7/16 x 20	36	49	55	75	78	106	–	–
1/2 x 13	49	66	75	102	107	145	93	126
1/2 x 20	55	75	85	115	120	163	–	–
9/16 x 12	70	95	109	148	154	209	134	182
9/16 x 18	78	106	121	164	171	232	–	–

**Table 8 Torque Values if You Apply LocTite 242 (cont'd.)**

Dimension	The Grade of the Bolt							
	Grade 2		Grade 5		Grade 8		Grade BC	
	Pound-Feet	N-m	Pound-Feet	N-m	Pound-Feet	N-m	Pound-Feet	N-m
5/8 x 11	97	132	150	203	212	287	186	252
5/8 x 18	110	149	170	230	240	325	–	–

**Table 9. Torque Values if You Apply LocTite 262**

Dimension	The Grade of the Bolt							
	Grade 2		Grade 5		Grade 8		Grade BC	
	Pound-Feet	N-m	Pound-Feet	N-m	Pound-Feet	N-m	Pound-Feet	N-m
3/4 x 10	155	210	240	325	338	458	296	401
3/4 x 16	173	235	267	362	378	512	–	–
7/8 x 9	150	203	386	523	546	740	477	647
7/8 x 14	165	224	426	578	601	815	–	–

**Table 10. Torque Values if You Apply LocTite 272 (High-Temperature)**

Dimension	The Grade of the Bolt							
	Grade 2		Grade 5		Grade 8		Grade BC	
	Pound-Feet	N-m	Pound-Feet	N-m	Pound-Feet	N-m	Pound-Feet	N-m
1 x 8	350	475	901	1222	1272	1725	1114	1510
1 x 12	383	519	986	1337	1392	1887	–	–
1 x 14	393	533	1012	1372	1428	1936	–	–
1-1/8 x 7	496	672	1111	1506	1802	2443	1577	2138
1-1/8 x 12	556	754	1247	1691	2022	2741	–	–
1-1/4 x 7	700	949	1568	2126	2544	3449	2226	3018
1-1/4 x 12	774	1049	1737	2355	2816	3818	–	–
1-3/8 x 6	917	1243	2056	2788	3335	4522	2919	3958
1-3/8 x 12	1044	1415	2341	3174	3797	5148	–	–
1-1/2 x 6	1217	1650	2729	3700	4426	6001	3873	5251
1-1/2 x 12	1369	1856	3071	4164	4980	6752	–	–

**Table 11. Torque Values if You Apply LocTite 277**

Dimension	The Grade of the Bolt							
	Grade 2		Grade 5		Grade 8		Grade BC	
	Pound-Feet	N-m	Pound-Feet	N-m	Pound-Feet	N-m	Pound-Feet	N-m
1 x 8	325	441	837	1135	1181	1601	1034	1402
1 x 12	356	483	916	1242	1293	1753	–	–
1 x 14	365	495	939	1273	1326	1798	–	–
1-1/8 x 7	461	625	1032	1399	1674	2270	1464	1985
1-1/8 x 12	516	700	1158	1570	1877	2545	–	–
1-1/4 x 7	650	881	1456	1974	2362	3202	2067	2802
1-1/4 x 12	719	975	1613	2187	2615	3545	–	–
1-3/8 x 6	851	1154	1909	2588	3097	4199	2710	3674
1-3/8 x 12	970	1315	2174	2948	3526	4781	–	–
1-1/2 x 6	1130	1532	2534	3436	4110	5572	3597	4877
1-1/2 x 12	1271	1723	2852	3867	4624	6269	–	–



## Stainless Steel Fasteners

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**Table 12. Torque Values for Stainless Steel Fasteners 5/16-inch and Smaller**

Dimension	316 Stainless		18-8 Stainless		18-8 Stainless with Loctite 767	
	Pound-Inches	N-m	Pound-Inches	N-m	Pound-Inches	N-m
1/4 x 20	79	9	76	9	45	5
1/4 x 28	100	11	94	11	56	6
5/16 x 18	138	16	132	15	79	9
5/16 x 24	148	17	142	16	85	10

**Table 13. Torque Values for Stainless Steel Fasteners Larger Than 5/16-inch**

Dimension	316 Stainless		18-8 Stainless		18-8 Stainless with Loctite 767	
	Pound-Feet	N-m	Pound-Feet	N-m	Pound-Feet	N-m
3/8 x 16	21	28	20	27	12	16
3/8 x 24	23	31	22	29	13	18
7/16 x 14	33	44	31	42	19	25
7/16 x 20	35	47	33	45	20	27
1/2 x 13	45	61	43	58	26	35
1/2 x 20	47	64	45	61	27	37
9/16 x 12	59	81	57	77	34	46
9/16 x 18	66	89	63	85	38	51
5/8 x 11	97	131	93	125	56	75
5/8 x 18	108	150	104	141	62	84
3/4 x 10	132	179	128	173	77	104
3/4 x 16	130	176	124	168	75	101
7/8 x 9	203	275	194	263	116	158
7/8 x 14	202	273	193	262	116	157
1 x 8	300	406	287	389	172	233
1 x 14	271	367	259	351	156	211
1-1/8 x 7	432	586	413	560	248	336
1-1/8 x 12	408	553	390	529	234	317
1-1/4 x 7	546	740	523	709	314	425
1-1/4 x 12	504	683	480	651	288	390
1-1/2 x 6	930	1261	888	1204	533	722
1-1/2 x 12	732	992	703	953	422	572

## Preparation

BNUUUN02.T01 0000222511 E.2 B.3 A.3 1/2/20 2:14 PM Released



**WARNING: Fire Hazard** — Some solvents and primers are flammable.



- ▶ Use threadlocker and primers with sufficient airflow.
- ▶ Do not use flammable material near ignition sources.

1. Clean all threads with a wire brush or a different tool.
2. Remove the grease from the fasteners and the mating threads with solvent. Make the parts dry.



**NOTE:** LocTite 7649 Primer™ or standard solvents will remove grease from parts.

3. Apply a spray of LocTite 7649 Primer™ or equal on the fasteners and the mating threads. Let the primer dry for one minute minimum.

## How to Apply a Threadlocker

BNUUUN02.T02 0000222508 E.2 B.3 A.3 11/26/19 2:48 PM Released



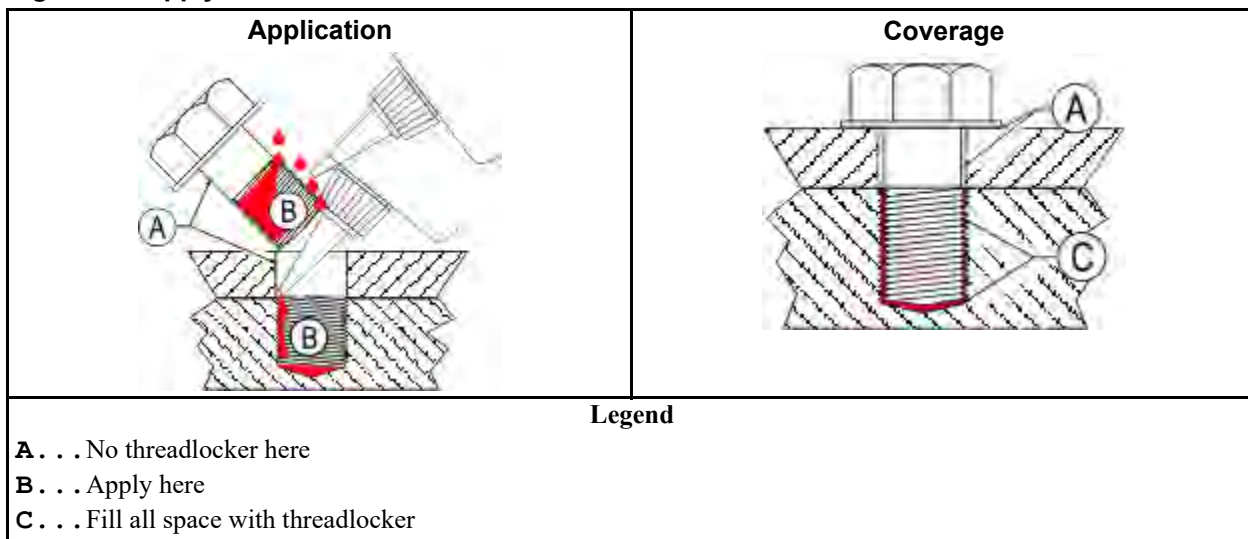
**CAUTION: Malfunction Hazard** — Heat, vibration, or mechanical shocks can let the fasteners loosen if you do not apply the threadlocker correctly. Loose fasteners can cause malfunctions of the equipment.



- ▶ Read the threadlocker manufacturer's instructions and warnings. Obey these instructions.

Apply the threadlocker only to the areas where the fastener threads and the mating threads engage.

**Figure 2. Apply Threadlocker in a Blind Hole**



## Blind Holes

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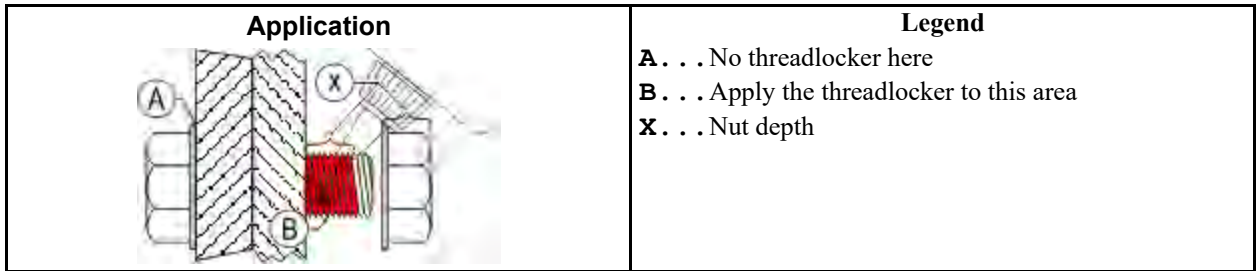
1. Apply the threadlocker down the threads to the bottom of the hole.
2. Apply the threadlocker to the bolt.
3. Tighten the bolt to the value shown in the correct table ([Table 6: Threadlocker by the Diameter of the Bolt](#) (see below Note ), page 13 to [Table 12: Torque Values for Stainless Steel Fasteners 5/16-inch and Smaller](#), page 15 ).

## Through Holes

BNUUUN02.T04 0000222506 E.2 B.3 A.3 11/26/19 2:51 PM Released

1. Put the bolt through the assembly.
2. Apply the threadlocker only to the bolt thread area that will engage the nut.
3. Tighten the bolt to the value shown in the correct table ([Table 6: Threadlocker by the Diameter of the Bolt](#) (see below Note ), page 13 to [Table 12: Torque Values for Stainless Steel Fasteners 5/16-inch and Smaller](#), page 15 ).

**Figure 3. Apply Threadlocker in a Through Hole**



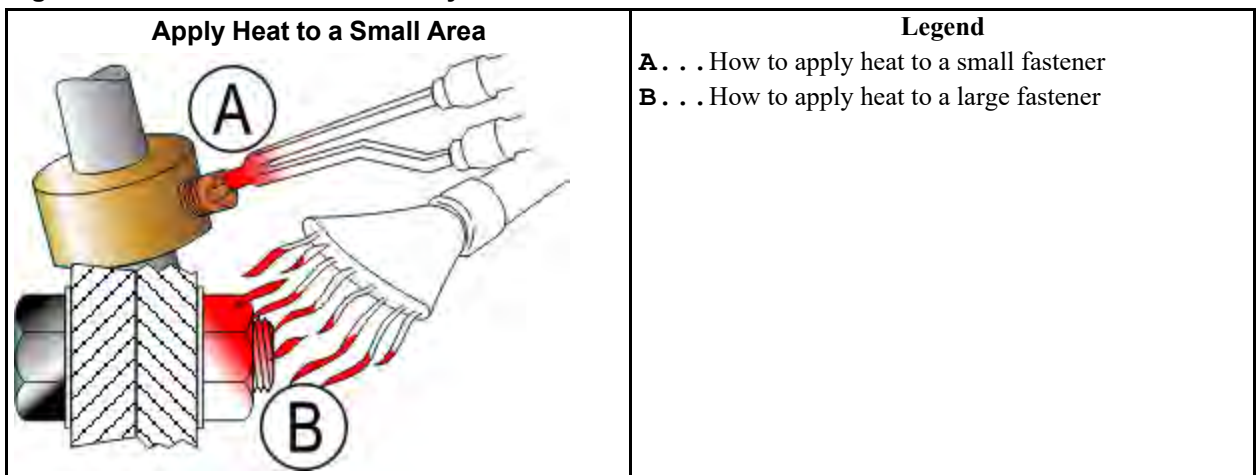
## Disassembly

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For high-strength threadlocker, apply heat for five minutes. Disassemble with hand tools while the parts are hot.

For low-strength and moderate-strength threadlocker, disassemble with hand tools.

**Figure 4. Use heat for disassembly of fasteners with threadlocker.**



## **2 Safety-Related Components and Assemblies**

BPSCNM01 / 2020044A

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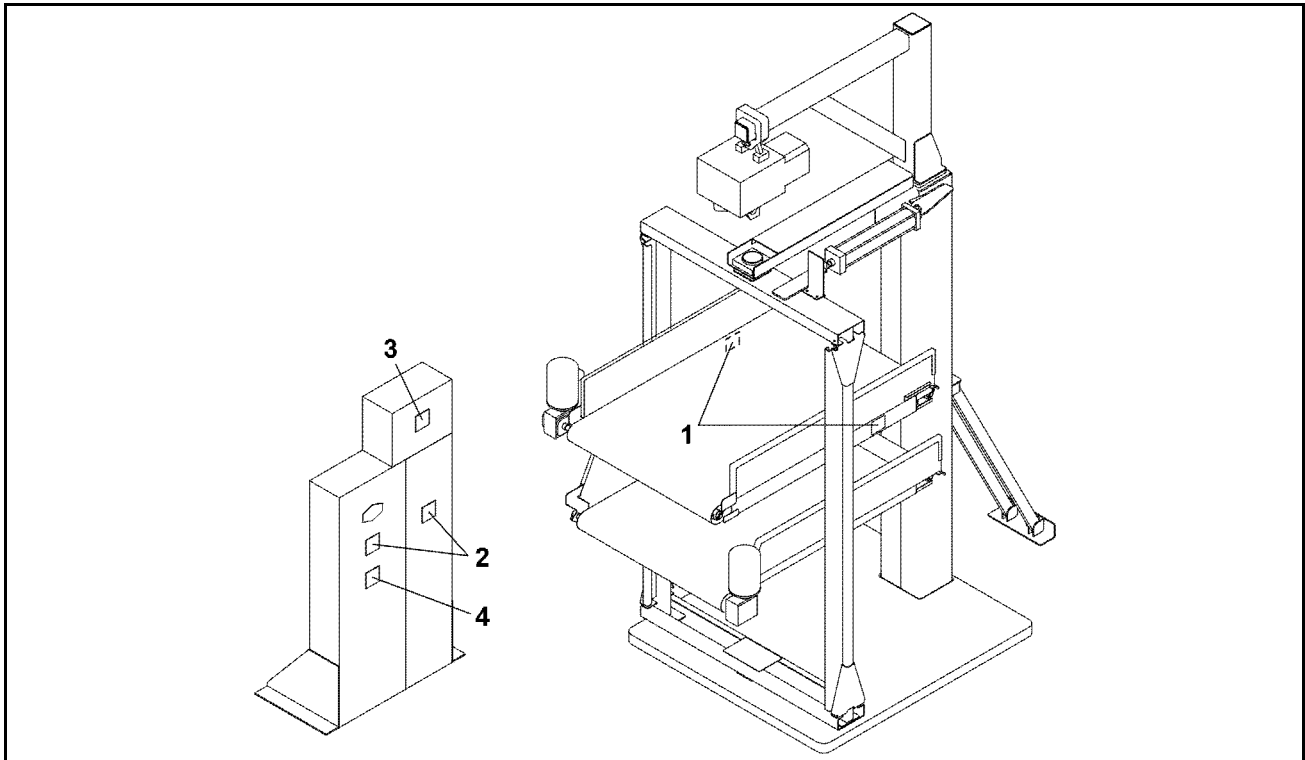
# Safety Placard Use and Placement

1 Sheet

CORFNL12, CORFNL12A, CORFNR12, CORFNR12A



**NOTICE:** Replace placard immediately, if removed or unreadable. Approximate locations of placards are shown. If aluminum placard, mounting holes are provided on machine. Use #8 self-tapping screws.



**Table 14. Parts List—Safety Placard Use and Placement**

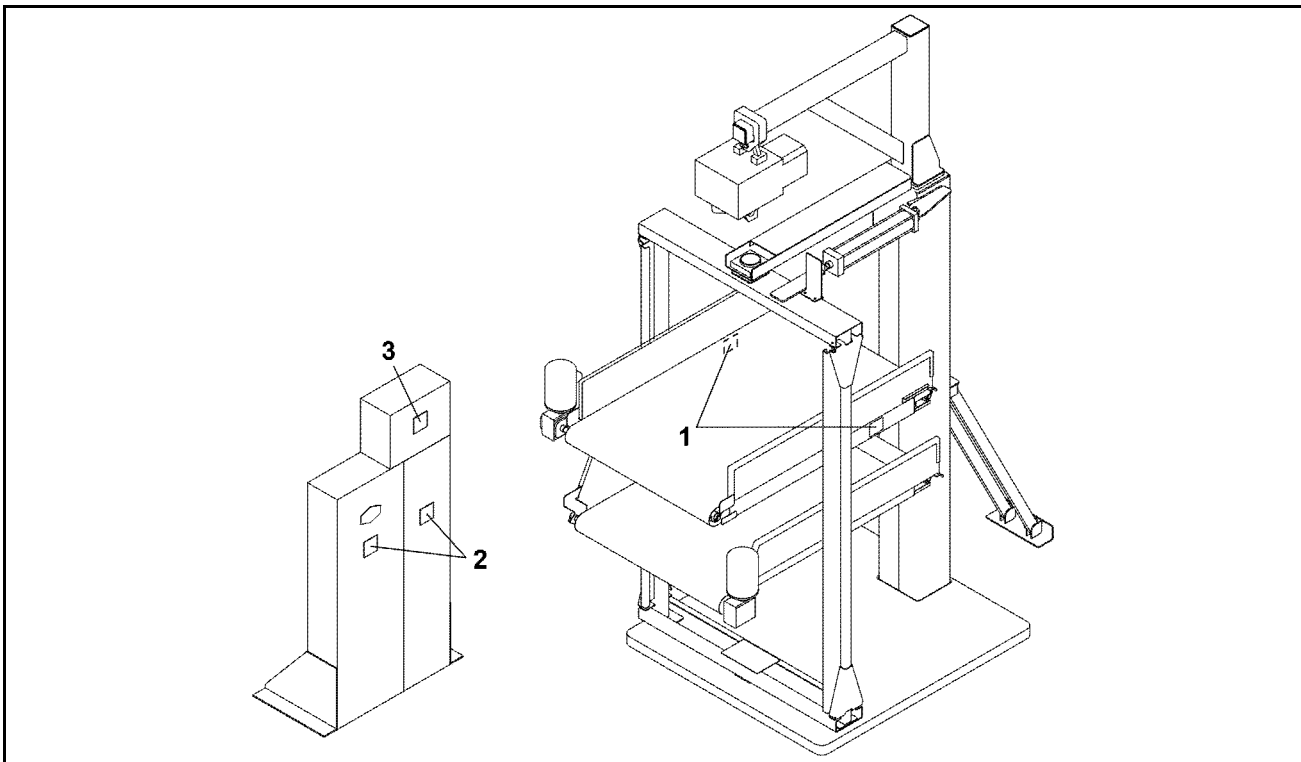
Find the assembly for your machine and the letter shown in the "Item" column. The components for your machine will show this letter or the word "all" in the "Used In" column. The numbers shown in the "Item" column are those shown in the illustrations.				
Used In	Item	Part Number	Description/Nomenclature	Comments
Reference Assemblies				
none				
Components				
all	1	01 10564A	NPLT: COSHA HAZARDS-TCATA	
all	2	01 10377A	NPLT: ELEC HAZARD LG-TCATA	
all	3	01 10375B	NPLT: ELEC HAZARD SMALL-TCATA	
all	4	01 10699A	NPLT: SERV HZRD-PLYEST-TCATA	

# Safety Placard Use and Placement ISO

CORFNL12, CORFNL12A, CORFNR12, CORFNR12A



**NOTICE:** Replace placard immediately, if removed or unreadable. Approximate locations of placards are shown. If aluminum placard, mounting holes are provided on machine. Use #8 self-tapping screws.



**Table 15. Parts List—Safety Placard Use and Placement ISO**

Used In	Item	Part Number	Description/Nomenclature	Comments
Reference Assemblies				
none				
Components				
all	1	01 10564X	WARNINGS:SHUTTLE ISO	
all	2	01 10377	NPLTE:"WARNING" 4X4	
all	3	01 10375	NPLTE:"WARNING" 2X2	

BNSUUH01 / 2021344

BNSUUH01 0000374280 A.7 8/19/21 10:11 AM Released

## Use the Red Safety Supports for Maintenance — CA\_, CG\_, COEL\_, COLF\_, COSH\_

BNSUUH01.C01 0000374279 E.2 A.7 A.4 8/18/21 8:51 AM Released

### What Safety Supports are Provided and Why

BNSUUH01.C02 0000374278 E.2 A.7 8/19/21 9:52 AM Released

These machines are provided with two safety pins. After the bed is raised, the pins are inserted in holes in both sides of the frame. The safety pins provide protection against the unpowered descent of the bed during maintenance. A mechanical problem such as a broken chain can cause the bed to fall. Use the safety support(s) whenever the maintenance to be performed requires you to place any part of your body in or near the path of the vertically moving portion of the machine.



**WARNING: Incorrect use of the safety supports** — can cause the machine to descend and crush you.



- ▶ Never work near the path of the vertically moving portion of the machine unless the safety supports are deployed and power is removed from the machine.
- ▶ Do not use power to close a small gap between the machine and the safety supports. Use care not to lower the machine with the safety supports

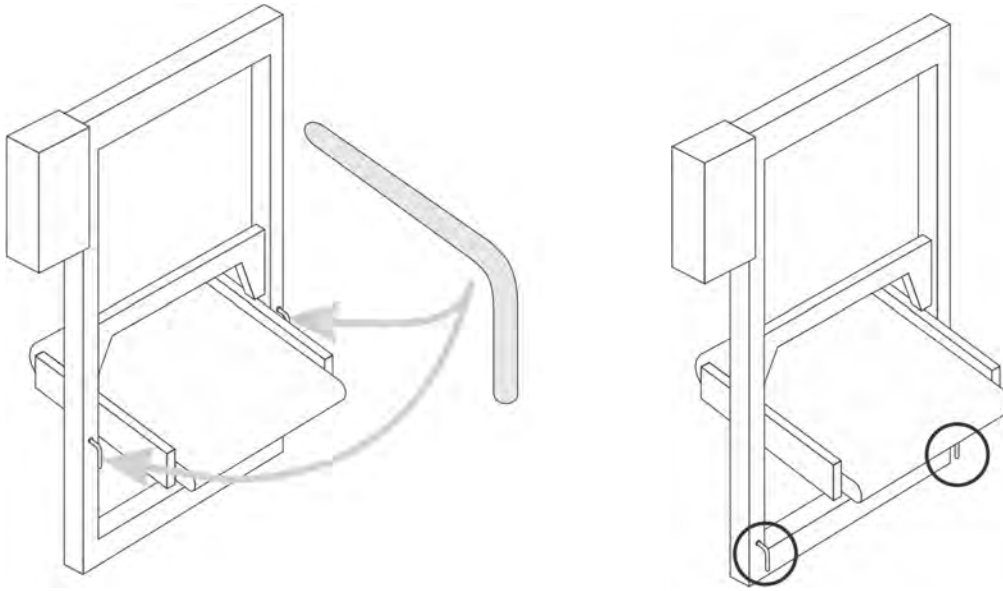
deployed.

- ▶ Where a pair of safety supports is provided, always use both supports.
- ▶ Maintain the safety support(s) in good condition.
- ▶ When not in use, stow the safety support(s) in the location(s) provided on the machine or in a convenient, designated location.

## How to Deploy the Safety Pins

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1. Use the Manual mode to raise the bed or bucket carrier only as far as needed to insert the pins at one of the receptacle holes.
2. The illustrations below show the safety pins deployed (at left) and stowed (at right). Install the safety pins into the receptacle holes in the frame.



3. Remove electric power from the machine.



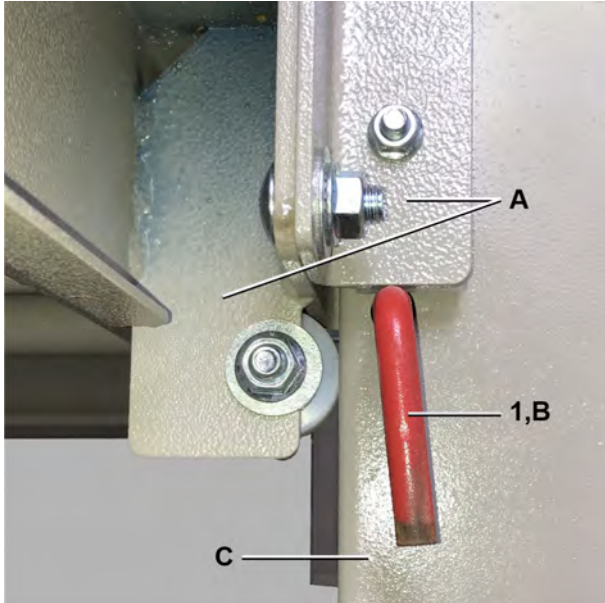
BPSCUK01 / 2021344A

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# Safety Pin

1 Sheet

All Elevating Shuttles and Pivoting Elevators.

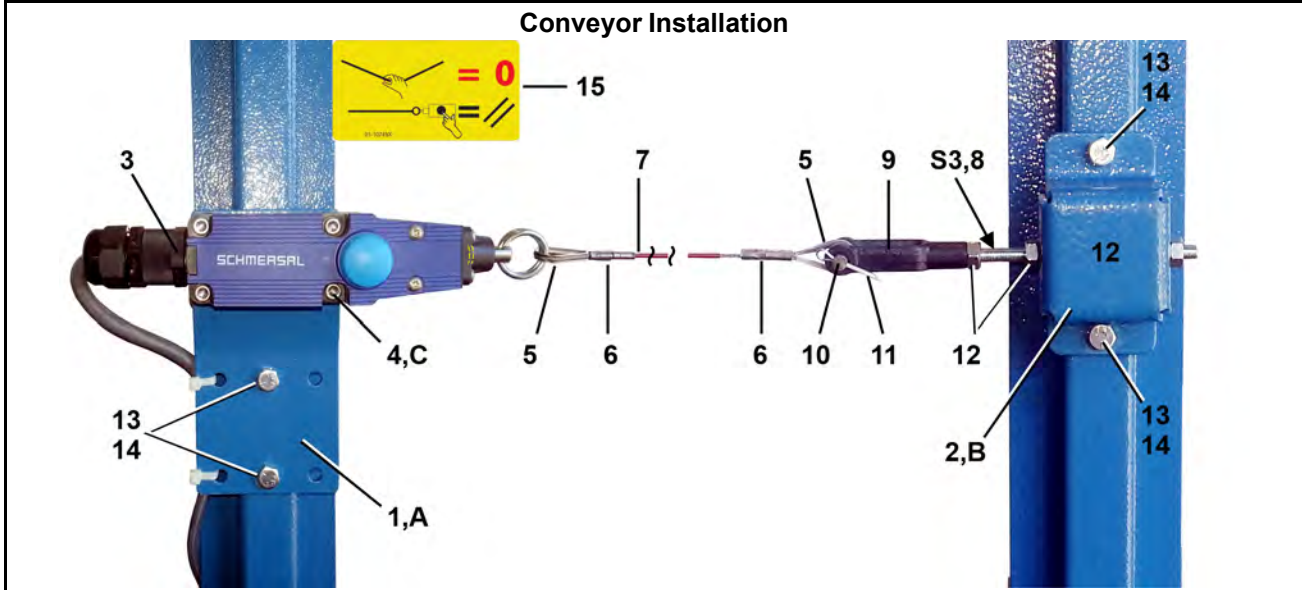
	<p style="text-align: center;"><b>Legend</b></p> <p><b>A</b> . . . Side Slider  <b>B</b> . . . Safety Pin, 2 instances, left and right  <b>C</b> . . . Vertical frame member</p>
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**Table 16. Parts List—Safety Pin**

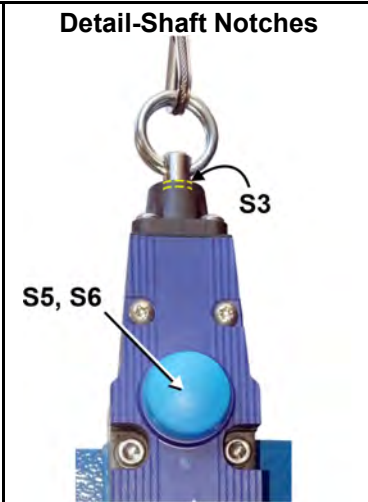
Find the assembly for your machine and the letter shown in the "Item" column. The components for your machine will show this letter or the word "all" in the "Used In" column. The numbers shown in the "Item" column are those shown in the illustrations.				
Used In	Item	Part Number	Description/Nomenclature	Comments
Components				
all	1	04 21496	SAFETY PIN-COSHA	

# Pull-wire Stop Switch

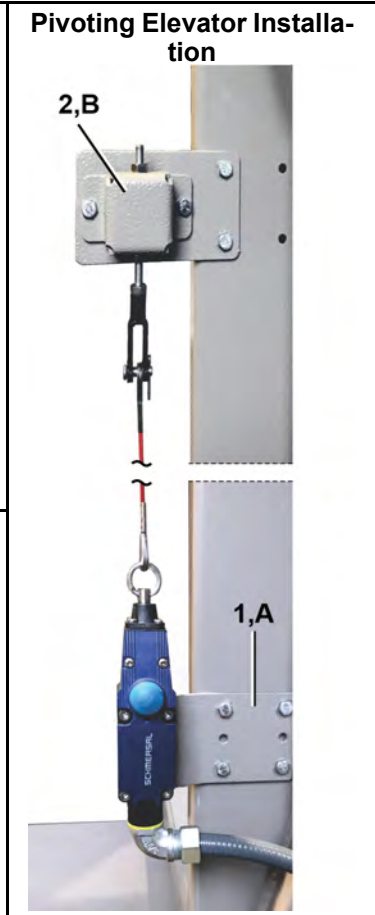
## All Conveyors and Pivoting Elevators



- Steps: Assembly and Operation**
- S1 . .** For Conveyors: Install Pull-wire Stop Switch to both side of all conveyors. Install the switch bracket, switch, and adjusting bracket to the conveyor side support as shown. For long spans, intermediate wire supports are required every 2 m to 5 m (6 ft. to 16 ft.). Sufficient space must be provided so that maximum perpendicular force on the wire to activate the switch is 200 N (45 pounds) and the maximum deflection of the wire is 400 mm (15").
  - S2 . .** For all applications: Assemble and install the cable (pull cord), thimbles, and sleeves so that the cable is tight but does not begin to move the switch shaft.
  - S3 . .** Adjust the position of the threaded rod (item 8) so that the cable pulls the switch shaft out until the first of two notches on the shaft is visible, but the second notch is not.
  - S4 . .** Tighten the nuts on the threaded rod (item 12) to hold it at this position.
  - S5 . .** Operation: Press the button on the switch to ARM. The button should remain depressed. If it does not, the switch shaft is not in the correct position.
  - S6 . .** Press the button to RE-ARM the switch after the wire has been tripped.



- Legend**
- A . . .** Switch Bracket
  - B . . .** Adjustment Bracket
  - C . . .** 4 instances



# Pull-wire Stop Switch

2 Sheet

## All Conveyors and Pivoting Elevators

**Table 17. Parts List—Pull-wire Stop Switch**

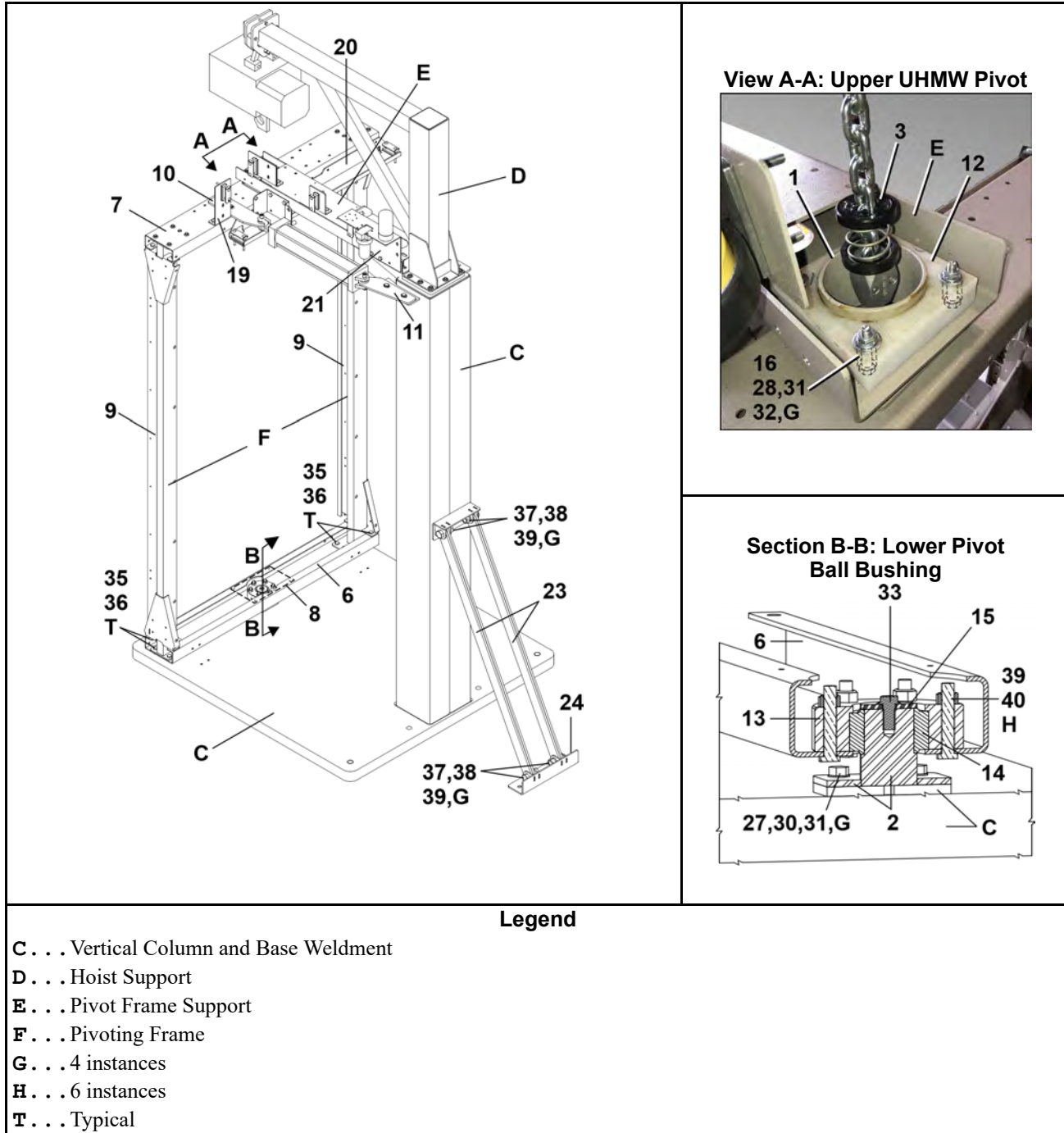
Find the assembly for your machine and the letter shown in the "Item" column. The components for your machine will show this letter or the word "all" in the "Used In" column. The numbers shown in the "Item" column are those shown in the illustrations.				
Used In	Item	Part Number	Description/Nomenclature	Comments
Reference Assemblies				
	A	ALC40005E	PULL-WIRE STOP SWITCH ASSY	
Components				
Pull-Wire Stop St	1	04 20066	WIREPULL SWITCH BRACKET	Conveyors, CONWA, CONLO
	1	04 24128	SAFETY SW MTG PLATE-4232M	Extractor Conveyors
	1	04 23863	SIDERAIL PULL CORD MTG PLATE	Pivoting Elevators CORFNL12/A CORFNR12/A
all	2	04 20067	WIREPULL ADJUSTING BRKT	
all	3	09RS0002	PULL-WIRE SW SCHMERSAL#ZQ 700-11	
all	4	15K022B	SOKCPSCR 10-24UNC X 1+1/2"LG SS18	
all	5	27A951	1/16" SS WIRE ROPE THIMBLE	
all	6	27A952	1/16" OVAL SLEEVE S/S	
all	7	27A953	CABLE-AIRCRAFT 1/16SS7X7REDCV	
all	8	17R015	THRD ROD 1/4-28UNFX4.5" ZNC PL	
all	9	17A004	ADJ YOKE END 1/4-28 XYLAN COAT	
all	10	17A004A	CLEVIS PIN 1/4"X3/4"DRILLED SS	
all	11	15H031	STDCOTTERPIN 3/32X3/4 SS18-8	
all	12	15G177	HXNUT 1/4-28UNF2B SAE ZINC GR2	
all	13	15K038B	1/4-20X 1/2 HEXFLANGE SCREW	
all	14	15G178	1/4"-20 HEXFLANGE NUT ZINC	
all	15	01 10749X	NPLT:PULL TO STOP+RESET>ISO	

# 3 Mechanical Components

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# Pivoting Elevator Stand

CORFNL12, CORFNL12A, CORFNR12, CORFNR12A







# Pivoting Elevator Stand

CORFNL12, CORFNL12A, CORFNR12, CORFNR12A

T . . . Typical

**Table 18. Parts List—Pivoting Elevator Stand**

Find the assembly for your machine and the letter shown in the "Item" column. The components for your machine will show this letter or the word "all" in the "Used In" column. The numbers shown in the "Item" column are those shown in the illustrations.				
Used In	Item	Part Number	Description/Nomenclature	Comments
Reference Assemblies				
	A	ALC50176	ROTATING CONVEYOR STAND ASSY	
Components				
all	1	W4 23830A	TOP PIVOT SHAFT WLMT	
all	2	W4 23832	BOTTOM PIVOT SHAFT WLMT	
all	3	27KH050P01	CHAIN CLAMP KIT #83707833 FOR DC-PRO 10	
all	4	X4 24646	CLEVIS PIN 1"X3.13LG 304 SS	
all	5	15H060	STDCOTTERPIN 3/16X2 ZINCPL	
all	6	04 23827	BOTTOM ROTATING FRAME	
all	7	04 23827A	TOP ROTATING FRAME	
all	8	04 23864	BOTTOM BEAM BUSHING COVER	
all	9	W4 23836	SIDERAIL TUBING WLMT-103"LG	
all	10	W4 23849	FRAME ROTATING ARM WLMT	
all	11	W4 23850	AIR CYL MOUNTING WLMT	
all	12	X4 23834A	PIVOT UHMW BUSHING-4.50" HOLE	
all	13	X4 24485	BALL BUSHING RETAINER 2"	
all	14	54A705A	SPHERICAL PLAIN BEARING=2"ROLLBRG#B32-L	
all	15	04 23889	WASHER=LOWER PIVOT BUSHING	
all	16	27B25022SZ	SPCR.391ID1.375L.048T STLZNC	
all	17	09H026V37	BEACON ROTARY 90MM AMBER CE ALLEN BRADLEY	
all	18	ALC50177	AIR CYL-ROTATING FRAME ASSY	
all	19	04 23875A	ROTATE FRAME FESTOON BRKT-TALL	
all	20	04 23875B	ROTATE FRAME BED FESTOON TRAY	
all	21	04 23887	OILER MOUNTING BRKT	
all	22	ALC420263	FESTOON FLAT CABLE CLAMP	
all	23	04 23907	COLUMN SUPPORT BAR	
all	24	W4 23909	FLOOR ANCHORING BRKT WLMT	
all	25	15P010	TRDCUT PHILPANHDSCR 10-24X1/2S	
all	26	15K092Z	HEXFLGSCR 3/8-16X1 GR5 ZINC	
all	27	15K110	HEXCAPSCR 3/8-16UNC2AX1.5 GR5-	
all	28	15K120	HXCAPSCR 3/8-16UNC2AX2 GR5 ZIN	
all	29	15K131	HEXCAPSCR 3/8-16UNC2AX 2.75GR5	
all	30	15U255	LOCKWASHER MEDIUM 3/8 ZINCPL	
all	31	15U240	FLATWASHER(USS STD) 3/8" ZNC P	
all	32	15G198	HXFLGNUT 3/8-16 ZINC	
all	33	15K146A	1/2-13 X 1 FLGBOLT NON-SERR ZN	
all	34	15U310S	FLATWASH-SS .53 X 1.37 .187T	
all	35	15G225H	HEXFLGNUT 1/2-13 SERRATED 18-8	
all	36	15K151	HXCAPSCR 1/2-13UNC2AX1.25 GR5	
all	37	15K162	HXCAPSCR 1/2-13UNC2AX1.5 GR5 P	



## Pivoting Elevator Stand

4 Sheet

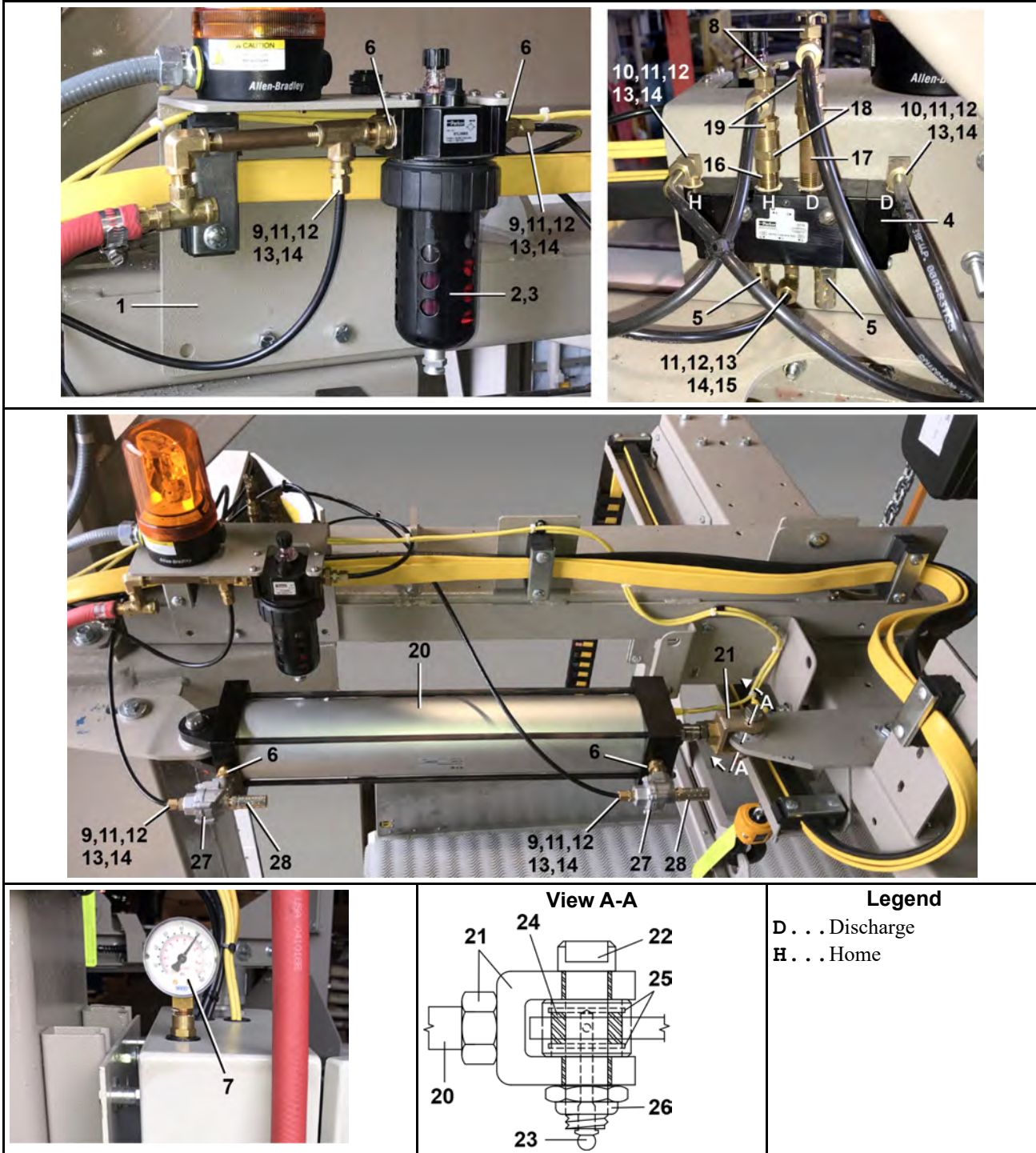
CORFNL12, CORFNL12A, CORFNR12, CORFNR12A

Table 18 Parts List—Pivoting Elevator Stand (cont'd.)

Find the assembly for your machine and the letter shown in the "Item" column. The components for your machine will show this letter or the word "all" in the "Used In" column. The numbers shown in the "Item" column are those shown in the illustrations.				
Used In	Item	Part Number	Description/Nomenclature	Comments
all	38	15U286	FLATWASHER 2"0DX17/32"IDX1/4"	
all	39	15K191	HXCAPSCR 1/2-13UNC2AX2.5 GR5 Z	
all	40	15G234N	HXLOCKNUT NYL 1/2-13UNC2 STL/Z	

# Pneumatic Cylinder and Oiler

CORFNL12, CORFNL12A, CORFNR12, CORFNR12A



# Pneumatic Cylinder and Oiler

2 Sheet

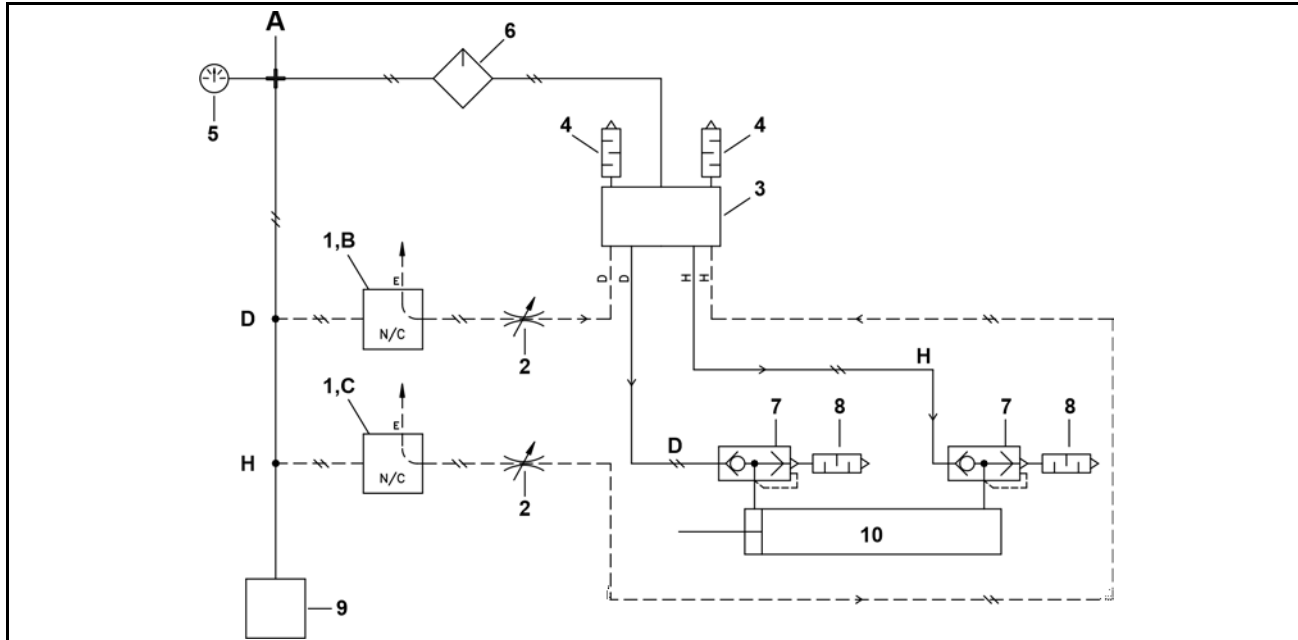
CORFNL12, CORFNL12A, CORFNR12, CORFNR12A

Table 19. Parts List—Pneumatic Cylinder and Oiler

Find the assembly for your machine and the letter shown in the "Item" column. The components for your machine will show this letter or the word "all" in the "Used In" column. The numbers shown in the "Item" column are those shown in the illustrations.				
Used In	Item	Part Number	Description/Nomenclature	Comments
Reference Assemblies				
	A	ALC420094	AIR CYL LUBRICATOR ASSY	REFERENCE
	B	ALC50177	AIR CYL-ROTATING FRAME ASSY	REFERENCE
Components				
all	1	07 20920	OIL HOLDER BKT	
all	2	30N600	1/2"AIRLINE LUBE PARK#07L36BE	
all	3	20H036	BRAKE FLUID, 12 QT PER CASE	
all	4	96N0013HU	SHUTLVLV 1/4"4WAY CENTER-OFF	
all	5	27A005A	MUFFLER 1/4"ALLIED B-28 BANTAM	
all	6	5SB0K0EBEO	NPTHEXBUSH 1/2X1/4 BRASS 125#	
all	7	30N102	PRESSGAUGE 1/4BOTCON.0-150PSI	
all	8	96H018	ANGLE NEEDLE VLV 1/4"X 1/8MP	
all	9	53A008B	BODYMALECON.25X.25COMP#B68A-4B	
all	10	53A031B	BODY-EL90MALE.25X1/8 #269C-42B	
all	11	53A059	SLEEVE 1/4"BRASS PH#60C-4	
all	12	53A059A	NUT 1/4"BR.HOLYOKE AND #61A-4	
all	13	53A501	TUBE INSERT .163"OD #63PT-4-40	
all	14	60E004TE	1/4"OD X.170"ID NYL(BLK)TUBING	
all	15	53A031XB	BODY-EL90MALE.25X25 #269C-4-4B	
all	16	5N0ECLSBE2	NPT NIP 1/4XCLS TBE BRASS 125#	
all	17	5N0E02ABE2	NPT NIP 1/4X2TBE BRASS 125#	
all	18	5SCC0EBE	NPT COUP 1/4 BRASS 150#PSI W/HEX	
all	19	5SB0E0CBEO	NPTHEXBUSH 1/4X1/8 BRASS 125#	
all	20	27C420	AIRCYL 4"BOREX20"STK X1"ROD 1.25"THD	
all	21	17A049Z	YOKE END 3/4-16UNF YELLOW ZINC	
all	22	X4 22046A	SHAFT=CLEVIS-COBUCK	
all	23	54M015	GREASEFIT 60X36/60X44 1610BL	
all	24	54AA00PBB	SPHERICAL PLAIN BRG BALL BUSHING 3/4 RBC-B12L	
all	25	17B132	INDUSTRIAL RETAIN.RING 4000-12	
all	26	15G246NS	HXTHIN NYL LOKNUT 3/4-10UNC SS18-8	
all	27	96M055	QUICK EXHAUST VLV.1/4"	
all	28	27A005	MUFFLER 3/8"	

# Pneumatic Schematic

CORFNL12, CORFNL12A, CORFNR12, CORFNR12A



### Legend

- A** . . . Compressed Air —85–110 PSI (5.97–7.73 kg.sq.cm.)
- B** . . . Pressure is applied to the shuttle valve to retract the cylinder when the pilot valve is energized.
- C** . . . Pressure is applied to the shuttle valve to extend the cylinder when the pilot valve is energized.
- D** . . . Discharge- The cylinder is retracted to achieve Discharge Position.
- E** . . . Exhaust
- H** . . . Home- The cylinder is extended to achieve Home Position or Load.
- N/C** . . Normally Closed Pilot Valve

**Table 20. Parts List—Pneumatic Schematic — Pivoting Elevator**

Find the assembly for your machine and the letter shown in the "Item" column. The components for your machine will show this letter or the word "all" in the "Used In" column. The numbers shown in the "Item" column are those shown in the illustrations.				
Used In	Item	Part Number	Description/Nomenclature	Comments
Reference Assemblies				
	A	AVACOFN37	AIR VAL ASSY PIVOT ELEV 120V	
	B	ALC420094	AIR CYL LUBRICATOR ASSY	
Components				
all	1	96R301B37	1/8" AIRPILOT 3W NC 120V50/60	
all	2	96H018	ANGLE NEEDLE VLV 1/4" T X 1/8MP	
all	3	96N0013HU	SHUTLVLV 1/4" 4WAY CENTER-OFF	
all	4	27A005A	MUFFLER 1/4" ALLIED B-28 BANTAM	
all	5	30N102	PRESSGAUGE 1/4" BOTCON.0-150PSI	
all	6	30N600	1/2" AIRLINE LUBE PARK#07L36BE	
all	7	96M055	DELTROL QUICK EXHAUST VLV. 1/4"	
all	8	27A005	MUFFLER 3/8" BANTAM B38	

## Pneumatic Schematic — Pivoting Elevator

1 Sheet

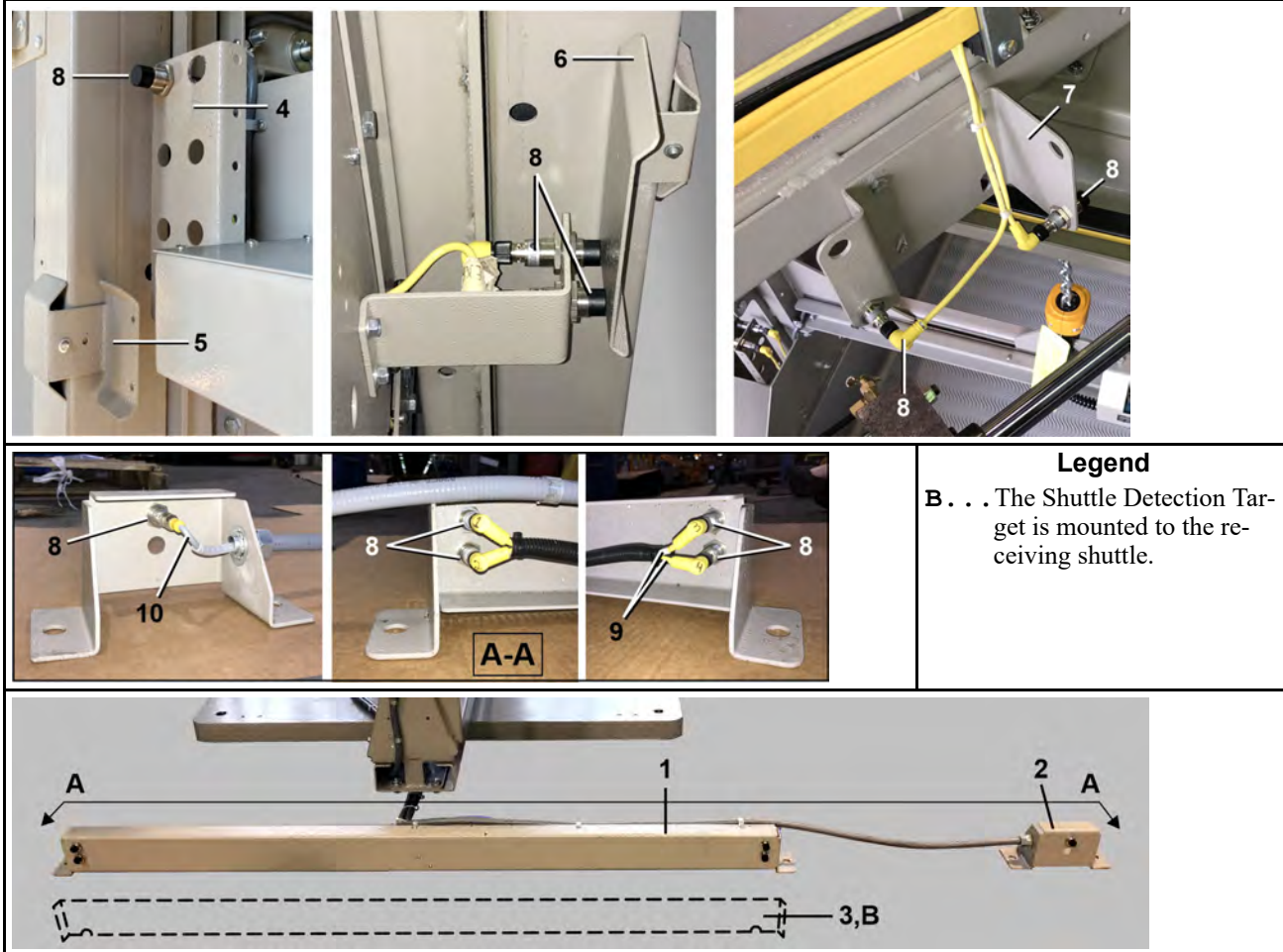
CORFNL12, CORFNL12A, CORFNR12, CORFNR12A

**Table 20 Parts List—Pneumatic Schematic — Pivoting Elevator (cont'd.)**

Find the assembly for your machine and the letter shown in the "Item" column. The components for your machine will show this letter or the word "all" in the "Used In" column. The numbers shown in the "Item" column are those shown in the illustrations.				
Used In	Item	Part Number	Description/Nomenclature	Comments
all	9	09N082B80	PRESSW NASON CLOSE @ 80 LB	
all	10	ALC50177	AIR CYL-ROTATING FRAME ASSY	

# Proximity Switches and Targets

CORFNL12, CORFNL12A, CORFNR12, CORFNR12A



**Legend**  
**B . . .** The Shuttle Detection Target is mounted to the receiving shuttle.

**Table 21. Parts List—Proximity Switches and Targets**

Find the assembly for your machine and the letter shown in the "Item" column. The components for your machine will show this letter or the word "all" in the "Used In" column. The numbers shown in the "Item" column are those shown in the illustrations.

Used In	Item	Part Number	Description/Nomenclature	Comments
Reference Assemblies				
	A	ES112PXA	FEST/PROX/COUNTER ASSY	REFERENCE
Components				
all	1	04 23872	SHUTTLE DETECT PROX.SW BRKT	
all	2	04 23872A	SHUTTLE DETECT STOP BRKT	
all	3	04 23871	SHUTTLE DETECTION TARGET	
all	4	04 23360	BED STOP SW MTG	
all	5	ALC50079	LOAD TARGET ASSY-COSHM	
all	6	ALC50080	DISCHARGE TARGET ASSY-COSHM	
all	7	04 23861	ROTATING FRAME PROX.SW BRKT	
all	8	09RPM18ADU	PRXSW QD CONN 18M NO-DC UNSHLD	

## Proximity Switches and Targets

2 Sheet

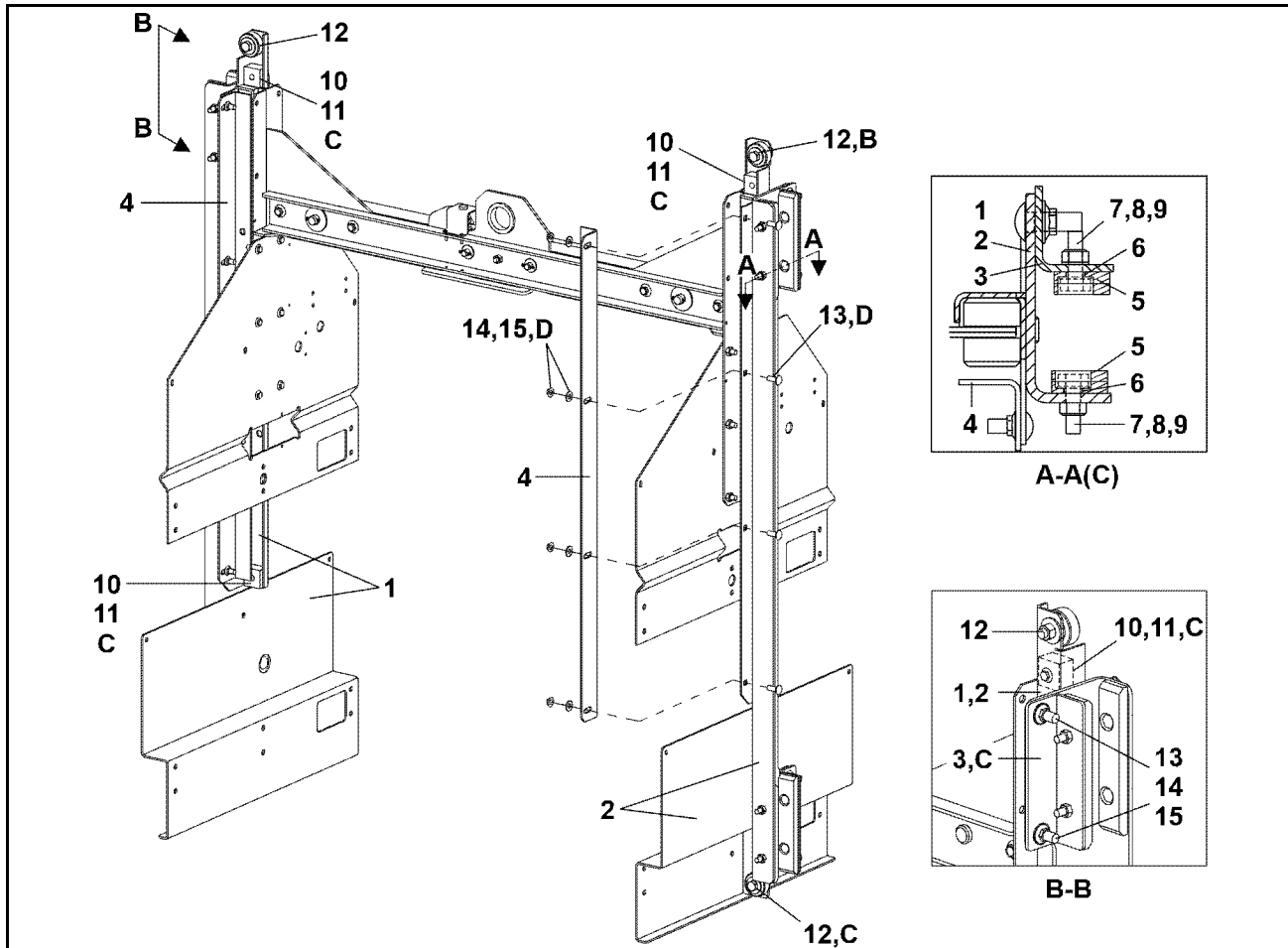
CORFNL12, CORFNL12A, CORFNR12, CORFNR12A

Table 21 Parts List—Proximity Switches and Targets (cont'd.)

Find the assembly for your machine and the letter shown in the "Item" column. The components for your machine will show this letter or the word "all" in the "Used In" column. The numbers shown in the "Item" column are those shown in the illustrations.				
Used In	Item	Part Number	Description/Nomenclature	Comments
all	9	09RPMCD902	CONN.90-DEG FEMLE DC 3A300V 2M	
all	10	09RPMCD905	CONN 90-DEG FEMLE DC 3A300V 5M	

# Side Slider Horizontal Beds

CORFNL12A, CORFN12A



### Legend

- A—A . . Cross section of slider pads
- B—B . . Rear view of side sliders, mechanical stop, and guide rollers
- C . . . 4 instances
- D . . . 8 instances

**Table 22. Parts List—Side Slider Horizontal Beds**

Find the assembly for your machine and the letter shown in the "Item" column. The components for your machine will show this letter or the word "all" in the "Used In" column. The numbers shown in the "Item" column are those shown in the illustrations.

Used In	Item	Part Number	Description/Nomenclature	Comments
Reference Assemblies				
	A	ALC50174	LF-RT HORZBED SLIDER-CORFXX	
Components				
all	1	W4 23855	SIDE SLIDER HORZBED LF-CORFXX	
all	2	W4 23855A	SIDE SLIDER HORZBED RT-CORFXX	
all	3	04 22243	MAIN SLIDER ADJ ANGLE	
all	4	04 22280	UPPER HORZBED SLIDER ADJ ANGLE	



**Side Slider Horizontal Beds**

2 Sheet

CORFNL12A, CORFNR12A

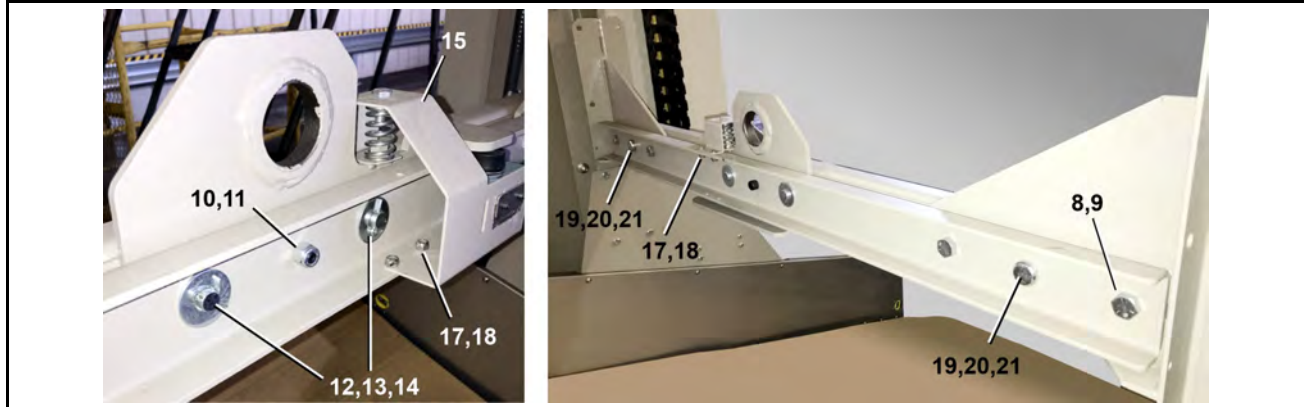
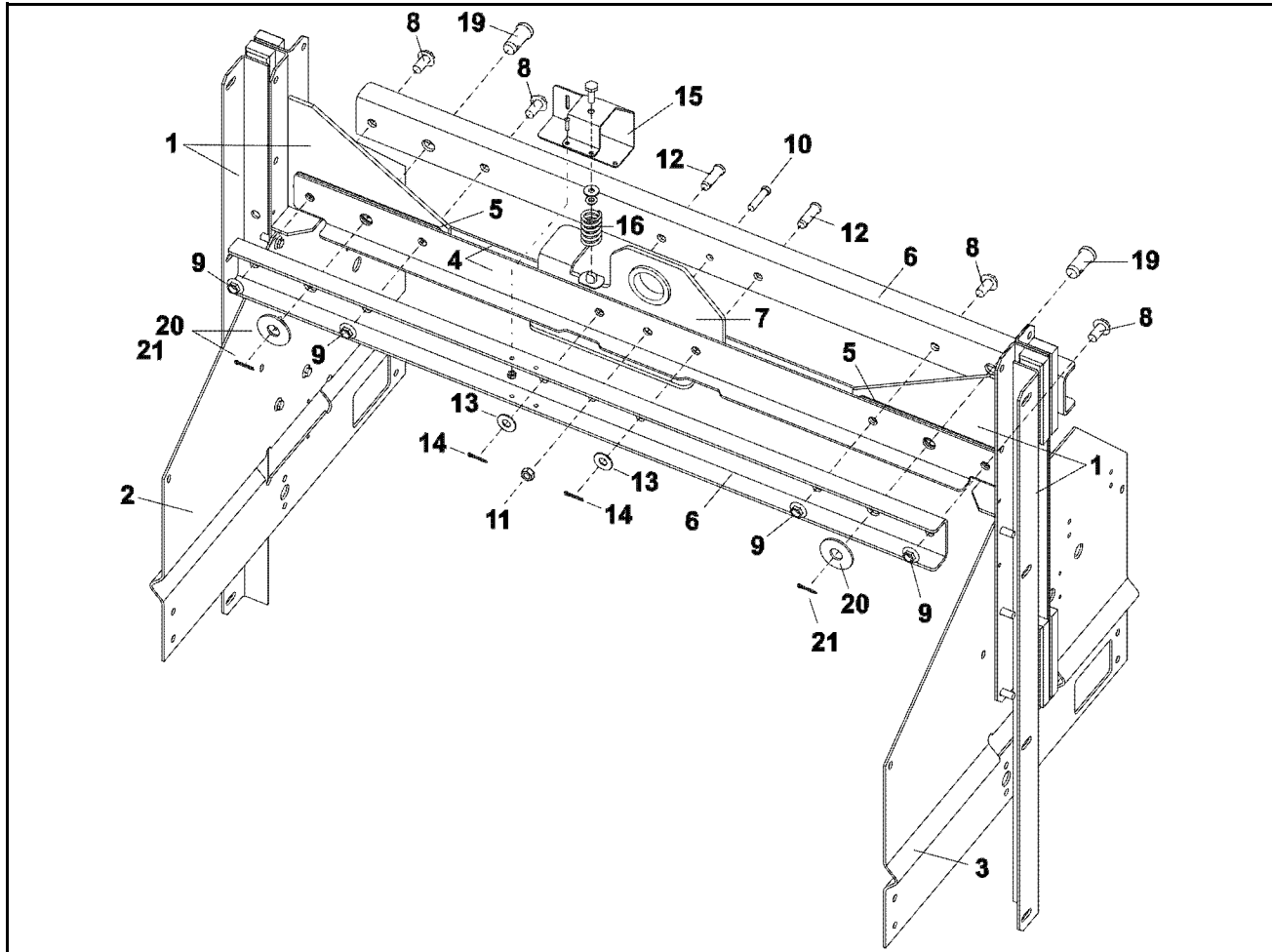
**Table 22 Parts List—Side Slider Horizontal Beds (cont'd.)**

Find the assembly for your machine and the letter shown in the "Item" column. The components for your machine will show this letter or the word "all" in the "Used In" column. The numbers shown in the "Item" column are those shown in the illustrations.				
Used In	Item	Part Number	Description/Nomenclature	Comments
all	5	X4 23391	TRACK SLIDER UHMW BAR	
all	6	27B25002SZ	SPCRROLL.39ID.125L.048T STLZNC	
all	7	15K105	HXCAPSCR 3/8-16UNC2A1.25 GR5 P	
all	8	15U200	FLATWASHER(USS STD) 5/16"ZNC P	
all	9	15G218	HXLOKNUT NYL 3/8-16 STL/ZNC	
all	10	02 19283	NUT=1/2-13UNCX1+1/2SQ SPEC	
all	11	15K153H	INDHEXFLGSCR1/2-13X1+1/4GR8ZN W/LOCTITE	
all	12	ALC50155	BED LIFT GUIDE WHEEL ASSY	
all	13	15A063	CARBOLT 1/2-13UNC2X1.50 ZINC G	
all	14	15U280	FL+WASHER(USS STD)1/2 ZNC PL+D	
all	15	15G222B	HEXFLGNUT 1/2-13 ZINC SERRATED	

# Bed Lifting Frame & Cross Member

CORFNL12, CORFNL12A, CORFNR12, CORFNR12A

Figure 5. Exploded View of Lifting Cross Member

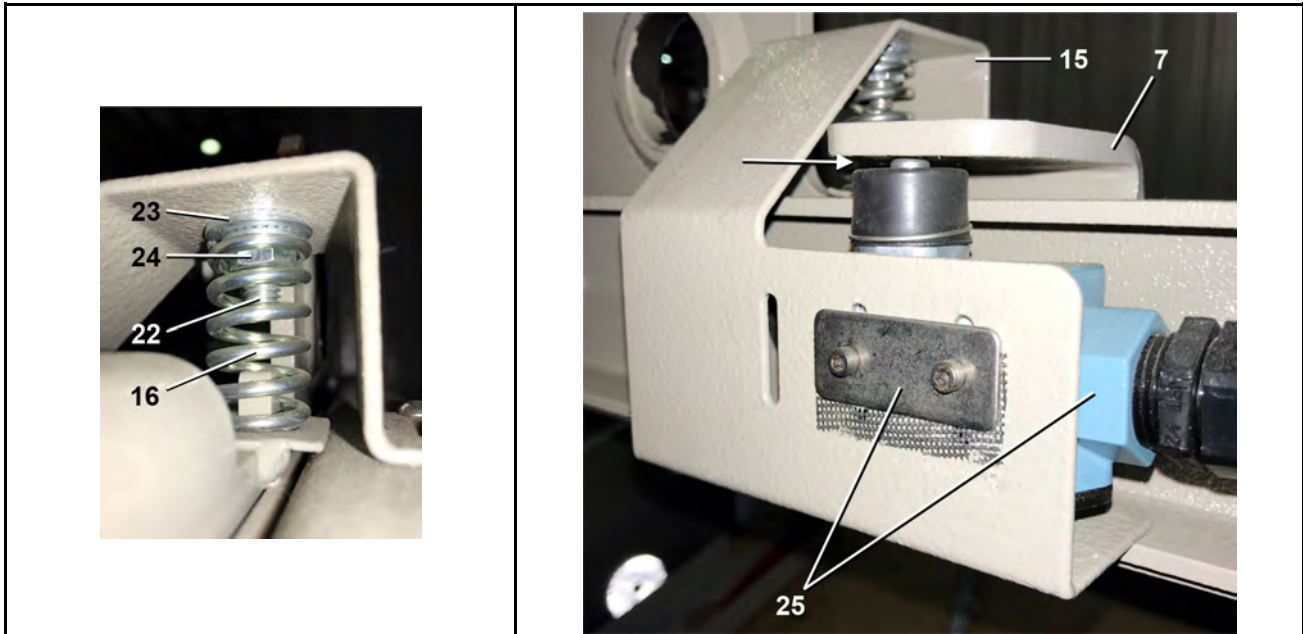


# Bed Lifting Frame & Cross Member

3 Sheet

CORFNL12, CORFNL12A, CORFNR12, CORFNR12A

Figure 6. Slack Chain Switch



With no load on the lifting assembly, position the slack chain proximity switch to look as shown in the photo on the right, touching the target. The slotted holes allow for vertical adjustment. The slack chain switch is actuated when the beds reach full down. When the switch is actuated, the beds rise to load.

Table 23. Parts List—Bed Lifting Frame & Cross Member

Used In	Item	Part Number	Description/Nomenclature	Comments
Reference Assemblies				
	A	ALC50175	ROTATE CONV LIFTING FRAME ASSY	REFERENCE
Components				
all	1	ALC50077	UPPERBED SLIDING PAD ASSY	
all	2	04 23851	UPPER HORZBED MTG PLATE-LF	
all	3	04 23851A	UPPER HORZBED MTG PLATE-RT	
all	4	04 23376	BED LIFTING CHAN SPACER	
all	5	04 23482	LIFTING X-MEMBER SHIM	
all	6	04 23375	BED LIFTING CHANNEL	
all	7	W4 23347	BED LIFT PLATE WLMT	
all	8	15K171B	HEXCAPSCR 1/2-13X1+3/4 GR8 ZIN	
all	9	15G222B	HEXFLGNUT 1/2-13 ZINC SERRATED	
all	10	15K111	SKCPSC3/8-16 UNC3 X 1.5 BLK	
all	11	15G207	HEXLIGHTLOKNUT 3/8-16 18-8SS N	
all	12	X4 24648	CLEVIS PIN 1/2"X1.50LG 304 SS	
all	13	15U280	FL+WASHER(USS STD)1/2 ZNC PL+D	
all	14	15H040	STDCOTTERPIN 1/8X3/4 ZINCPL	

## Bed Lifting Frame & Cross Member

3 Sheet

CORFNL12, CORFNL12A, CORFNR12, CORFNR12A

**Table 23 Parts List—Bed Lifting Frame & Cross Member (cont'd.)**

Find the assembly for your machine and the letter shown in the "Item" column. The components for your machine will show this letter or the word "all" in the "Used In" column. The numbers shown in the "Item" column are those shown in the illustrations.				
Used In	Item	Part Number	Description/Nomenclature	Comments
all	15	04 23373A	SLACKCHAIN SW BRKT-COSHM	
all	16	02 18187	SPRING=OUTER DOOR 60 WEHU	
all	17	15N141	RDMACSCR 10-24NCX3/4 SLOTTED S	
all	18	15G126	HXLOCKNUT NYLON 10-24 UNC SS N	
all	19	X4 24647	CLEVIS PIN 3/4"X1.75LG 304SS	
all	20	15U320P	FLATWASHER(USS STD) 3/4" ZNC P	
all	21	15H060	STDCOTTERPIN 3/16X2 ZINCPL	
all	22	15K065	HEXCAPSCR 5/16-18UNC2AX1 GR5 Z	
all	23	15U200	FLATWASHER(USS STD) 5/16"ZNC P	
all	24	15G196	HXFLGNUT 5/16-18 ZINC	
all	25	09R012STDG	* 09R012 +MOUNTING HDWRE+INST	

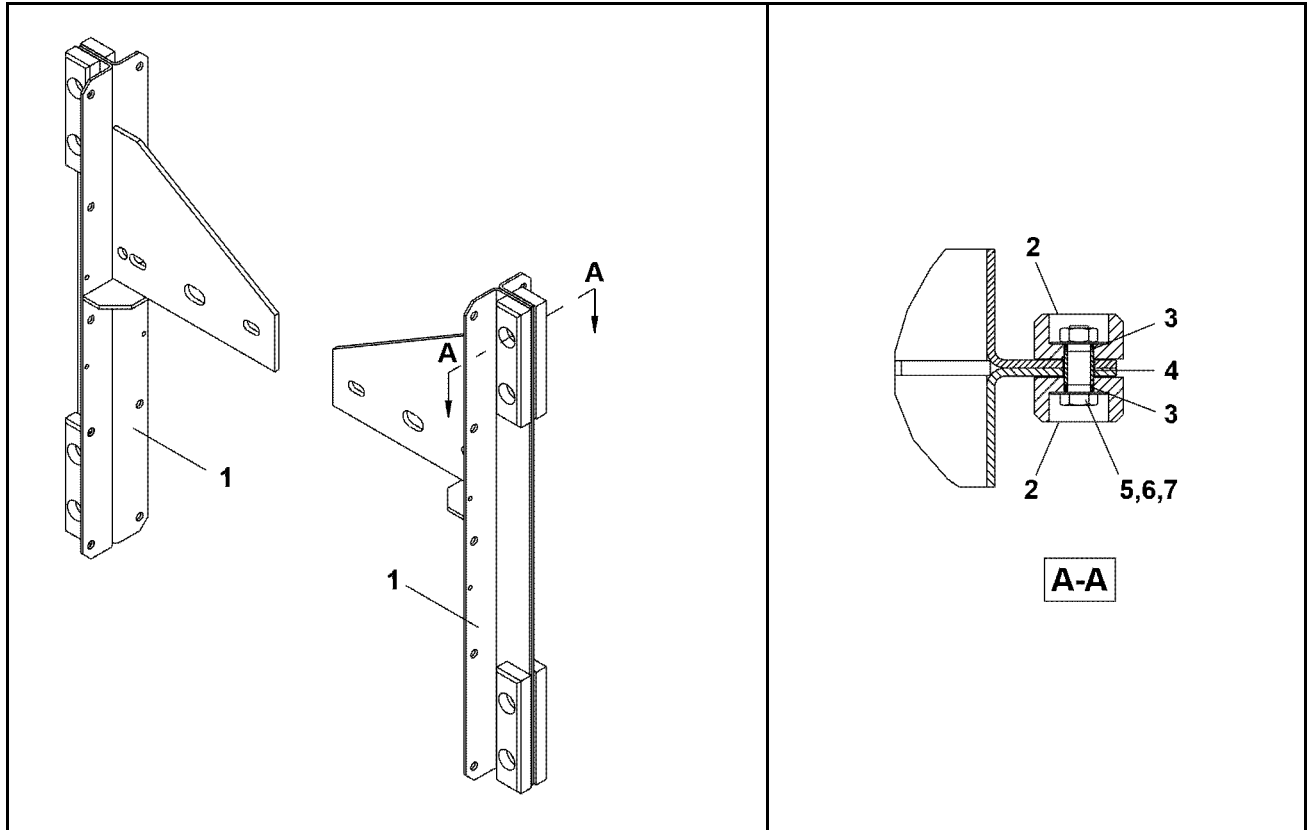
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# Upper Bed Sliding Pads

1 Sheet

CORFNL12, CORFNL12A, CORFNR12, CORFNR12A



### Legend

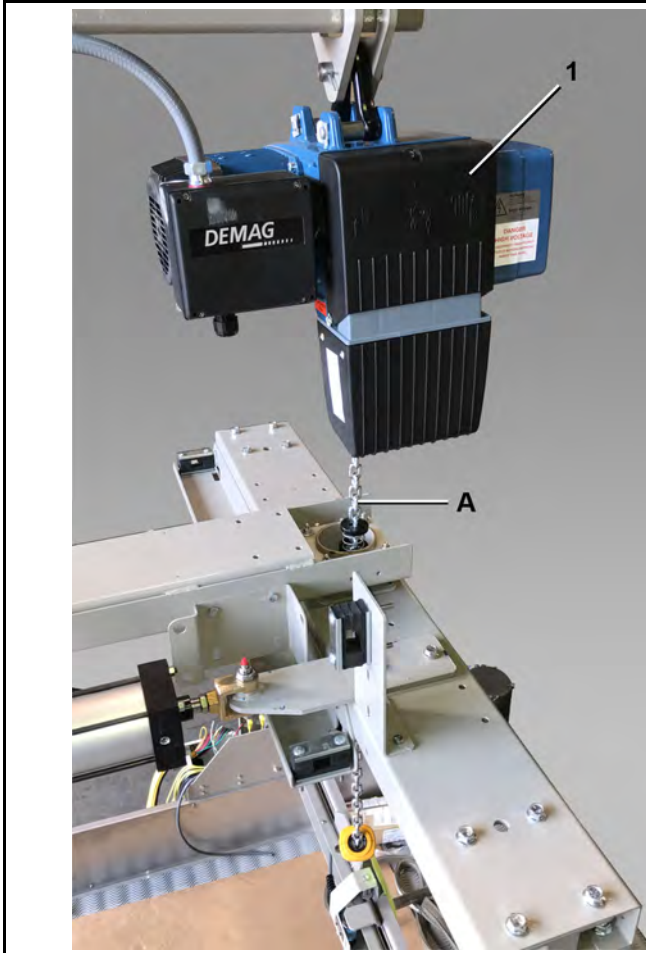
A—A . . Cross section view of sliding pads, 4 instances

**Table 24. Parts List—Upper Bed Sliding Pads**

Find the assembly for your machine and the letter shown in the "Item" column. The components for your machine will show this letter or the word "all" in the "Used In" column. The numbers shown in the "Item" column are those shown in the illustrations.				
Used In	Item	Part Number	Description/Nomenclature	Comments
Reference Assemblies				
	A	ALC50077	UPPERBED SLIDING PAD ASSY	
Components				
all	1	W4 23308	UPPER BED SLIDER WLMT (COLOR=AZURE BLUE)	
all	2	04 23322	UPPER BED SLIDER PAD	
all	3	27B2100G0L	SPCRROLL.39ID.562L.048T STLZNC	
all	4	27B25002SZ	SPCRROLL.39ID.125L.048T STLZNC	
all	5	15K105	HXCAPSCR 3/8-16UNC2A1.25 GR5 P	
all	6	15G218	HXLOKNUT NYL 3/8-16 STL/ZNC	
all	7	15U200	FLATWASHER(USS STD) 5/16"ZNC P	

# Hook Mounted Chain Hoist

CORFNL12, CORFNL12A, CORFNR12, CORFNR12A



**Legend**

**A. . .** Check the chain to insure it is not twisted. Lubricate the chain per the Maintenance Guide. See also, the hoist manufacturer's manual.

**Table 25. Parts List—Hook Mounted Chain Hoist**

Find the assembly for your machine and the letter shown in the "Item" column. The components for your machine will show this letter or the word "all" in the "Used In" column. The numbers shown in the "Item" column are those shown in the illustrations.

Used In	Item	Part Number	Description/Nomenclature	Comments
Components				
all	1	27KH050A88	DEMAGHOIST 1 TON 24FT/MIN 460V	

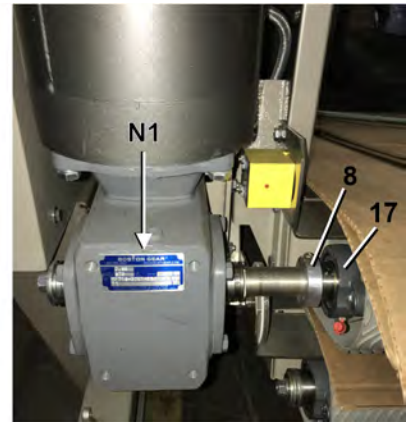
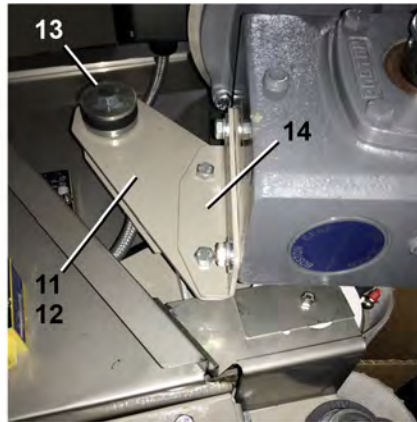
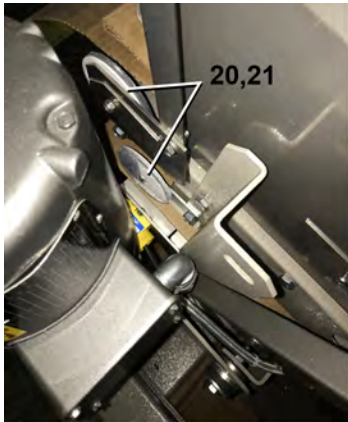
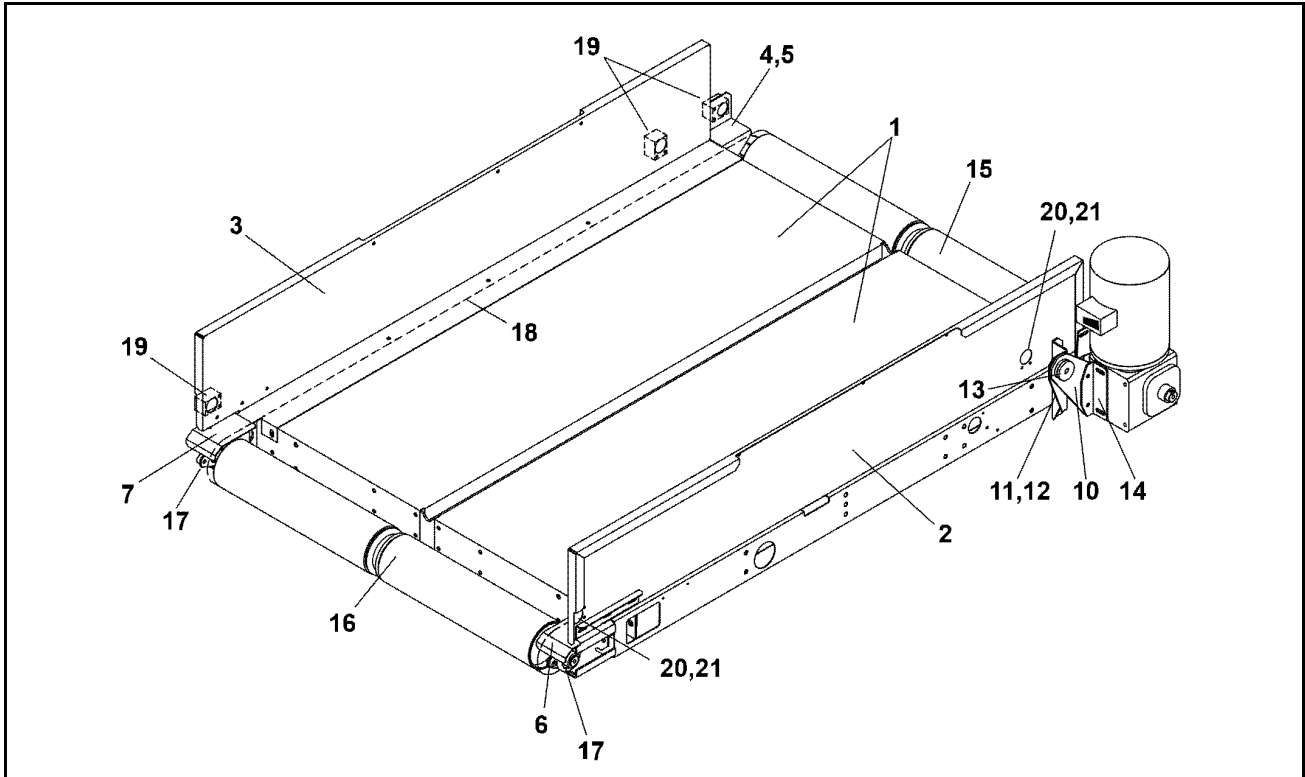
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# Single or Upper Bed 44 x 68

3 Sheet

CORFNL12, CORFNL2A, CORFNR12, CORFNR12A



### Legend

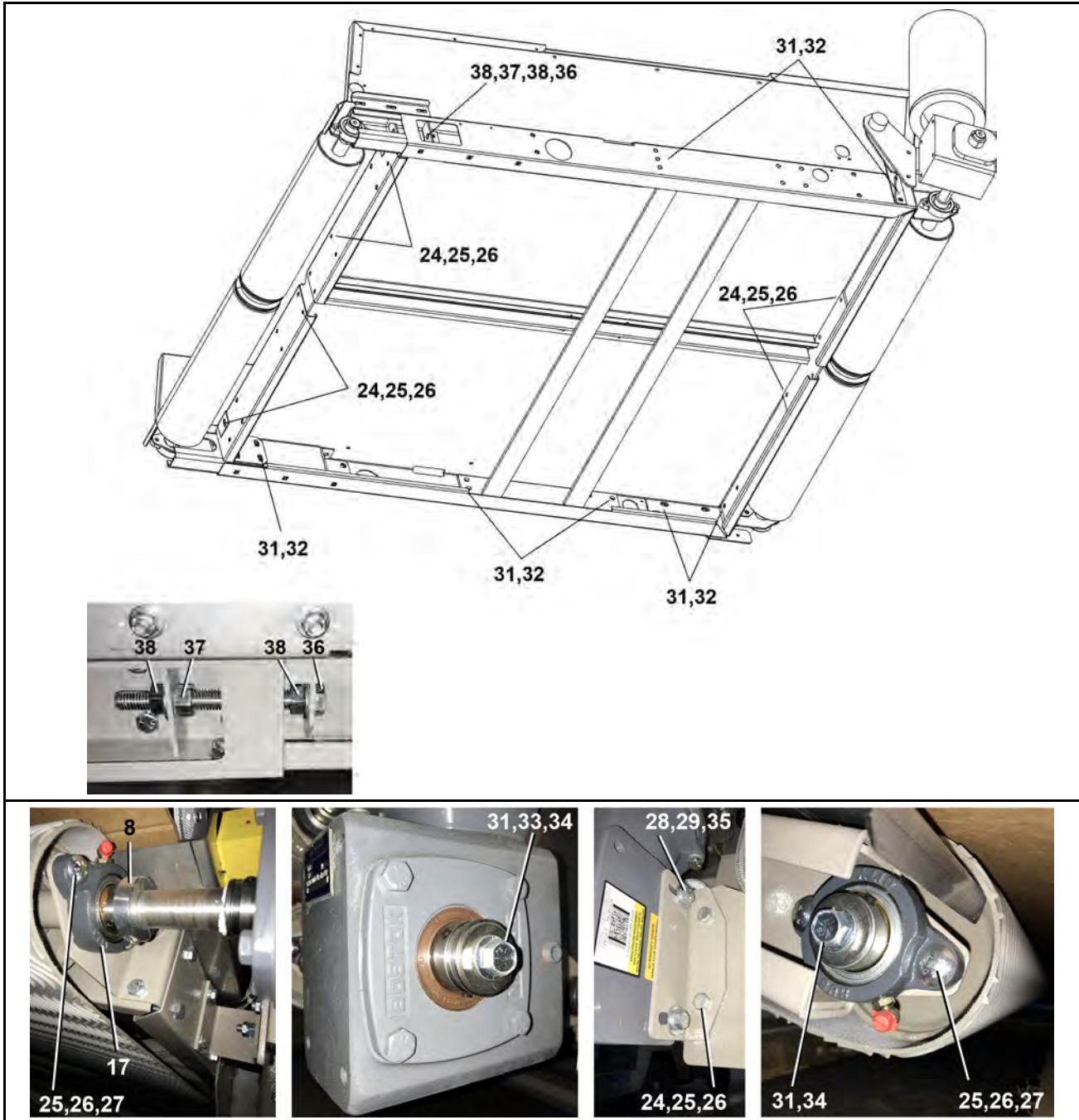
**N1** . . Gear Reducer. To order gear reducers, supply the parts department with your gear reducer's serial number and gear ratio. See the gear reducer's nameplate.



# Single Bed or Upper Bed 44" x 68"

3 Sheet

CORFNL12, CORFNL12A, CORFNR12, CORFNR12A





**Single Bed or Upper Bed 44" x 68"**

3 Sheet

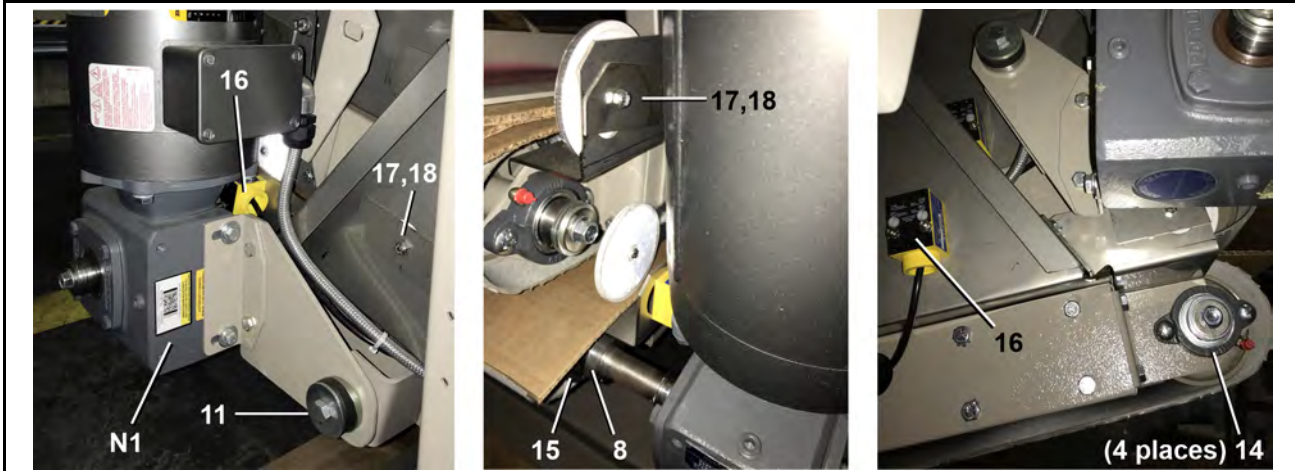
CORFNL12, CORFNL12A, CORFNR12, CORFNR12A

**Table 26. Parts List—Single Bed or Upper Bed 44 x 68**

Find the assembly for your machine and the letter shown in the "Item" column. The components for your machine will show this letter or the word "all" in the "Used In" column. The numbers shown in the "Item" column are those shown in the illustrations.				
Used In	Item	Part Number	Description/Nomenclature	Comments
Reference Assemblies				
	A	ALC50179	HORZ BED ASSY 44WX68LG-CORFXX	
Components				
all	1	ALC50081E	BED FRAME 44WX68LG ASSEMBLY	
all	2	04 23866	CORFXX SIDE UPPER HORZ 68"BED-RT	
all	3	04 23866A	CORFXX SIDE UPPER HORZ 68"BED-LF	
all	4	04 22283	UNLOAD BRNG COVER 44W-RT	
all	5	04 22283A	UNLOAD BRNG COVER 44W-LF	
all	6	04 22285	ROLLER BRNG COVER 44W BED-RT	
all	7	04 22285A	ROLLER BRNG COVER 44W BED-LF	
all	8	54JH11000A	SHAFTCOLLAR 1" CLPTYPE CFG#16A	
all	10	04 22275	TORQARM UPPER HORZBED	
all	11	04 22259	TORQARM BRKT UPPER BED-RT	
all	12	04 22259A	TORQARM BRKT UPPER BED-LF	
all	13	ALC420063	TORQUE ARM BUSHING ASSEMBLY	
all	14	04 22260B	TORQARM ADP ANGLE-SF718	
all	15	Y4 20832E	DRVROLLER 4.50D X 53" OAL	
all	16	Y4 20832G	IDLER ROLLER 4.50D X 44.5" OAL	
all	17	54AF10001	FLG BRG 1" BROWN#VF2S-116M	
all	18	ALC50164A	BELT+LACING FOR 'N' BED	
all	19	09RPE011	PHOTOEYE VALU-BEAM 10-30DC	
all	20	09RPE001A	REFLECTOR 3"DIA CLEAR	
all	21	03 BF2X4W	MOUNT PLT=PHOTO REFLECTOR	
all	24	15K065	HEXCAPSCR 5/16-18UNC2AX1 GR5 Z	
all	25	15U210	LOKWASHER MEDIUM 5/16 ZINCPL	
all	26	15G185	HXNUT 5/16-18UNC2B SAE ZINC GR	
all	27	15A008C	CARRBOLT 5/16-18NCX1"ZINC GR-	
all	28	15K095	HXCPSCR 3/8-16UNC2AX1 GR5 ZINC	
all	29	15U255	LOCKWASHER MEDIUM 3/8 ZINCPL	
all	30	15G205	HXNUT 3/8-16UNC2B ZINC GR2	
all	31	15K091H	HEXFLGSCR 3/8-16X3/4 ZN GRD.5	
all	32	15G198	HXFLGNUT 3/8-16 ZINC	
all	33	15U245A	FLTWASH 25/64IDX1.25ODX3/32 S/	
all	34	15U241MB	FLAT WASHER-1.50D 1+1/32ID 10G	
all	35	15U343	FLATWASH 1X25/64X1/8 ZINC	
all	36	15K203	HXTAPSCR TFL 1/2-13X5 GR5 ZINC	
all	37	15G230	HXNUT 1/2-13UNC2B SAE ZINC GR2	
all	38	15G222B	HEXFLGNUT 1/2-13 ZINC SERRATED	

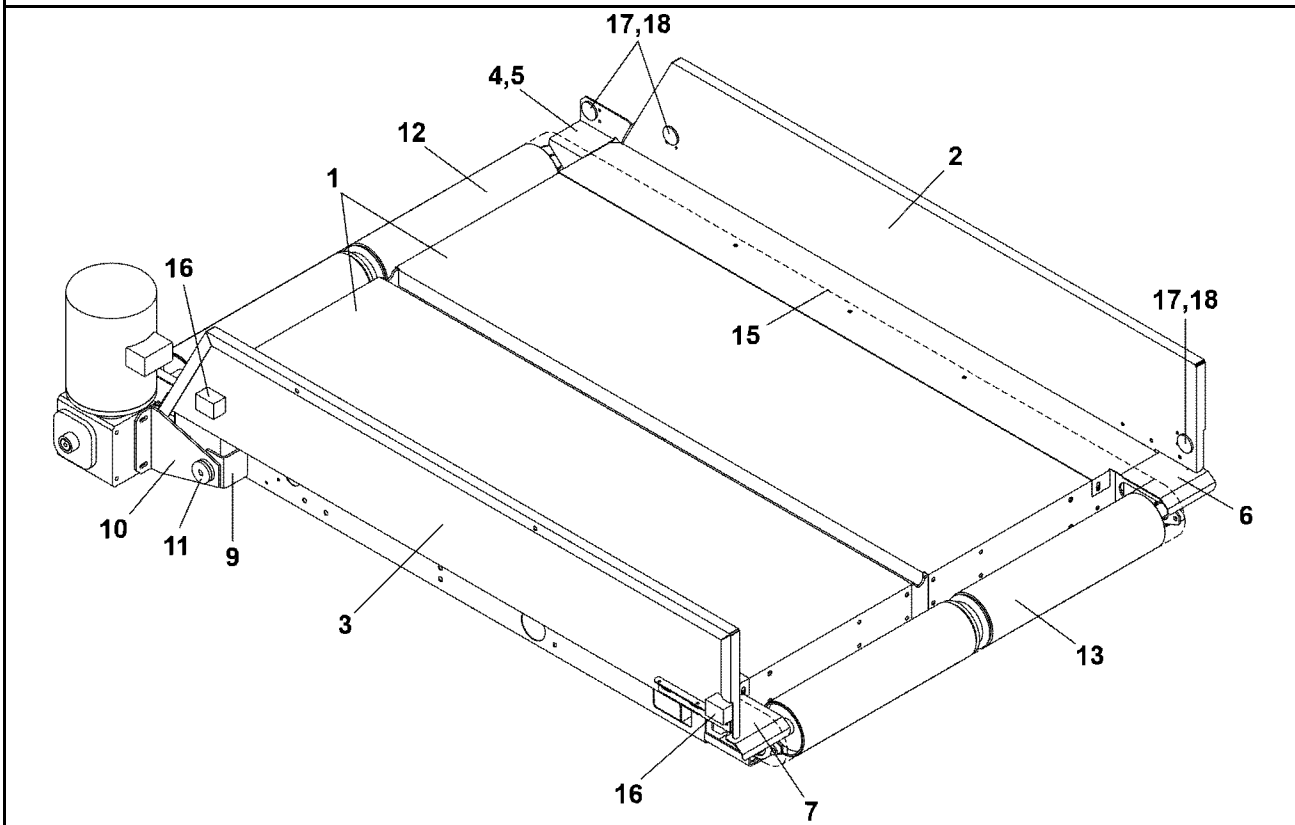
**Lower Bed 48 x 68**

CORFNL12, CORFNL12A, CORFNR12, CORFNR12A



**Legend**

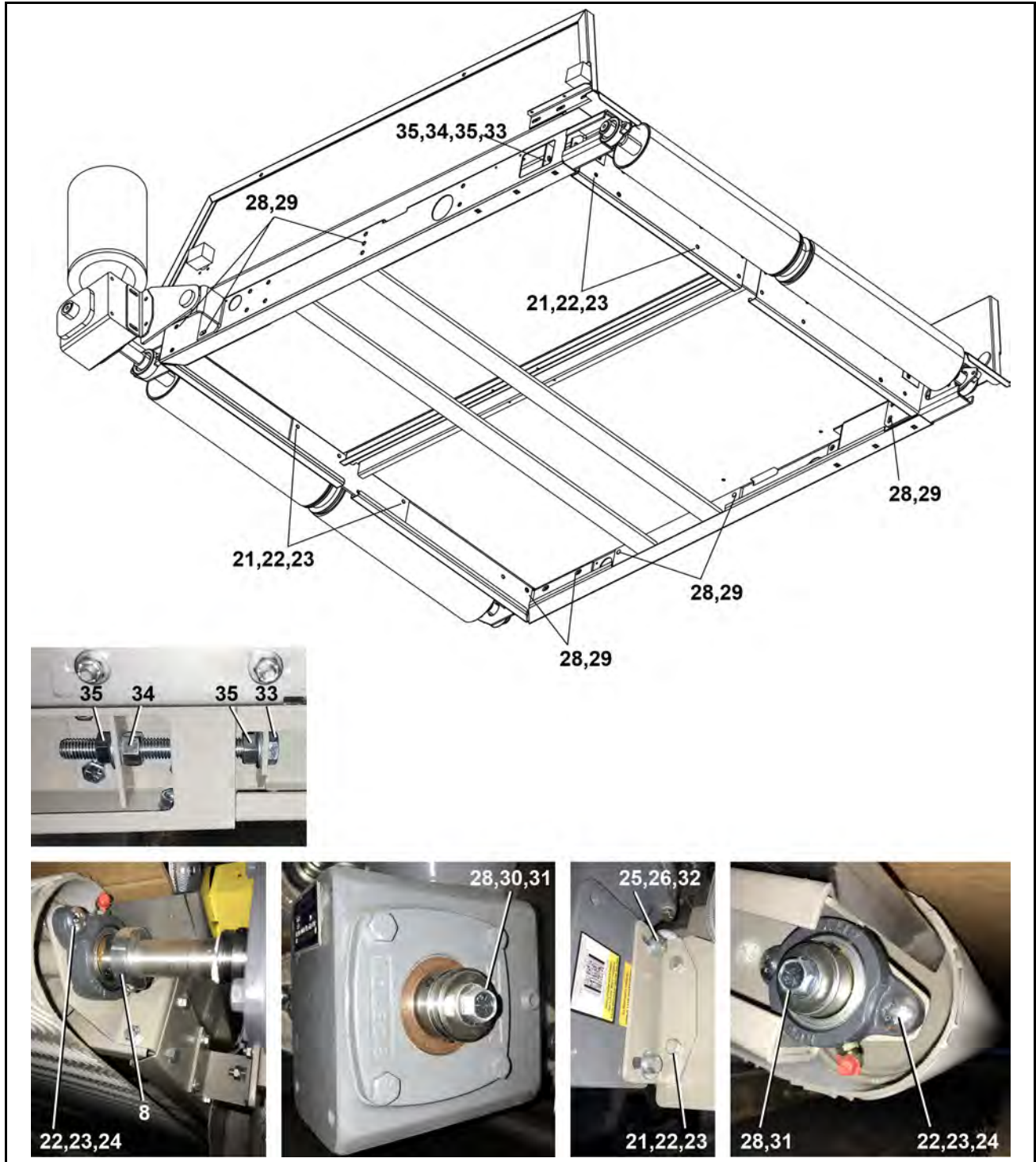
**N1** . . Gear Reducer. To order gear reducers, supply the parts department with your gear reducer's serial number and gear ratio. See the gear reducer's nameplate.



# Lower Bed 48" x 68"

3 Sheet

CORFNL12, CORFNL12A, CORFNR12, CORFNR12A



**General Service Information**  
**CORFNL12, CORFNL12A, CORFNR12, CORFNR12A**

**Table 27. Parts List—**

Find the assembly for your machine and the letter shown in the "Item" column. The components for your machine will show this letter or the word "all" in the "Used In" column. The numbers shown in the "Item" column are those shown in the illustrations.				
Used In	Item	Part Number	Description/Nomenclature	Comments
Reference Assemblies				
	A	ALC50180	HORZ 112BED ASSY 48WX68LG-CORFX	
Components				
all	1	ALC50081E	BED FRAME 44WX68LG ASSEMBLY	
all	2	04 23867	CORFX SIDE LOWER HORZ 68"BED-RT	
all	3	04 23867A	CORFX SIDE LOWER HORZ 68"BED-LF	
all	4	04 22282	UNLOAD BRNG COVER 48W-RT	
all	5	04 22282A	UNLOAD BRNG COVER 48W-LF	
all	6	04 22286	ROLLER BRNG COVER 48W BED-RT	
all	7	04 22286A	ROLLER BRNG COVER 48W BED-LF	
all	8	54JH11000A	SHAFTCOLLAR 1" CLPTYPE CFG#16A	
all	9	04 22233	TORQUE ARM GROMET MTG BRKT (COLOR=AZURE BLUE)	
all	10	04 22276	TORQARM LOWER HORZBED (COLOR=AZURE BLUE)	
all	11	ALC420063	TORQUE ARM BUSHING ASSEMBLY	
all	12	Y4 20832E	DRVROLLER 4.50D X 53" OAL (COLOR=AZURE BLUE)	
all	13	Y4 20832G	IDLER ROLLER 4.50D X 44.5" OAL (COLOR=AZURE BLUE)	
all	14	54AF10001	FLG BRG 1" BROWN#VF2S-116M (2BOLT FLG)	
all	15	ALC50164A	BELT+LACING FOR 'N' BED	
all	16	09RPE011	PHOTOEYE VALU-BEAM 10-30DC	
all	17	09RPE001A	REFLECTOR 3"DIA CLEAR	
all	18	03 BF2X4W	MOUNT PLT=PHOTO REFLECTOR	
all	21	15K065	HEXCAPSCR 5/16-18UNC2AX1 GR5 Z	
all	22	15U210	LOKWASHER MEDIUM 5/16 ZINCPL	
all	23	15G185	HXNUT 5/16-18UNC2B SAE ZINC GR	
all	24	15A008C	CARRBOLT 5/16-18NCX1"ZINC GR-	
all	25	15K095	HXCPSR 3/8-16UNC2AX1 GR5 ZINC	
all	26	15U255	LOCKWASHER MEDIUM 3/8 ZINCPL	
all	27	15G205	HXNUT 3/8-16UNC2B ZINC GR2	
all	28	15K091H	HEXFLGSCR 3/8-16X3/4 ZN GRD.5	
all	29	15G198	HXFLGNUT 3/8-16 ZINC	
all	30	15U245A	FLTWASH 25/64IDX1.25ODX3/32 S/	
all	31	15U241MB	FLAT WASHER-1.50D 1+1/32ID 10G	
all	32	15U343	FLATWASH 1X25/64X1/8 ZINC	
all	33	15K203	HXTAPSCR TFL 1/2-13X5 GR5 ZINC	
all	34	15G230	HXNUT 1/2-13UNC2B SAE ZINC GR2	
all	35	15G222B	HEXFLGNUT 1/2-13 ZINC SERRATED	