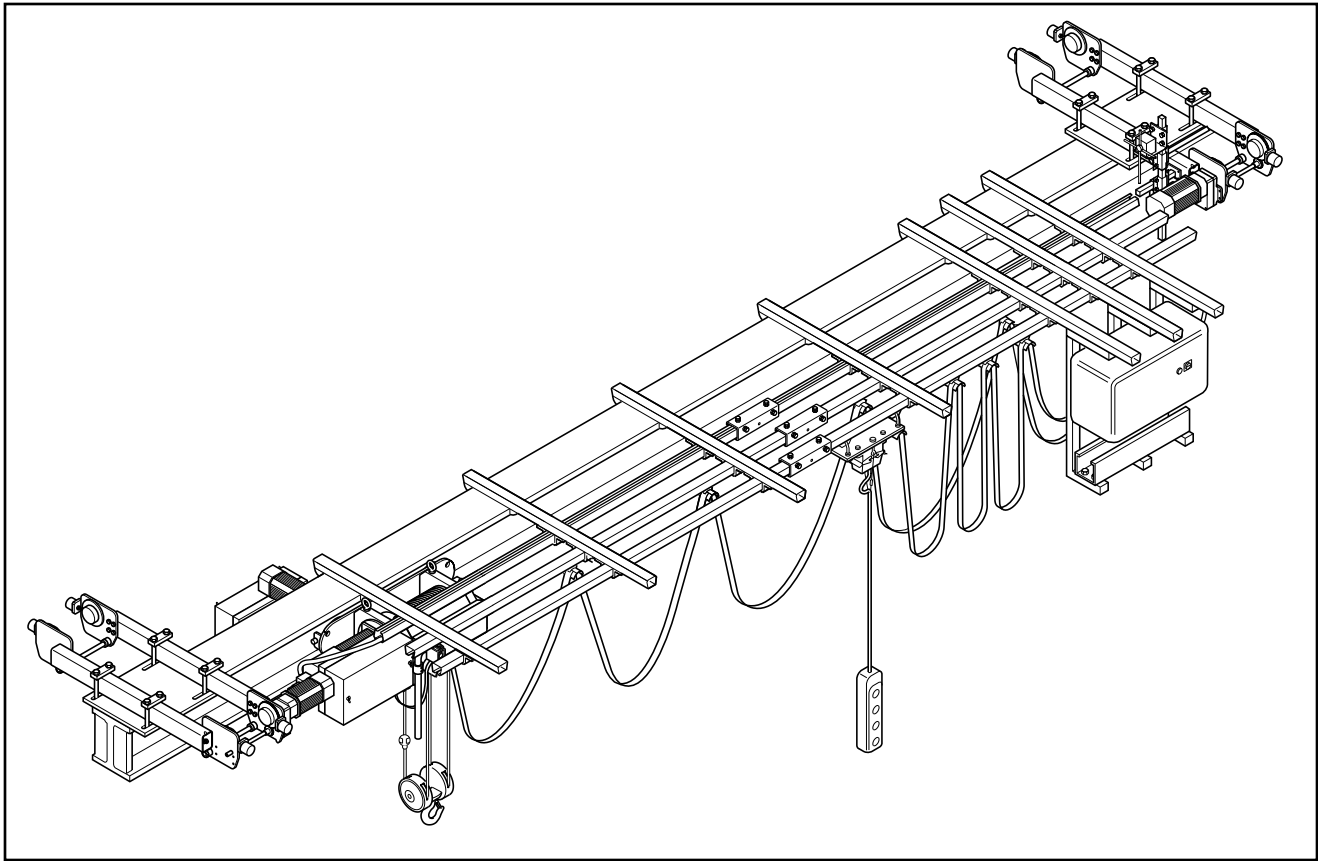


QC 2000 MODULAR CRANE

ASSEMBLING INSTRUCTIONS



UNDER RUNNING



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IMPORTANT ASSEMBLY INSTRUCTIONS

1. Ensure you have all correct assembly instructions before starting assembly.
2. Ensure you have the correct component package for your span and capacity.
3. Ensure the crane layout is the correct one for the application.
4. Use the correct size main girder.
5. Do not exceed maximum crane spans or capacities for any girder connection type.
6. Ensure you check alignment of drilling jigs before using.
7. Do not substitute metric girder connection hole sizes with English sizes.
8. Do not substitute any girder connection bolts or roll pin sizes with English sizes.
9. Use roll pins with all girder connections.
10. Tighten girder connection bolts to correct torque.
11. Plastic hammer may only be used to install traveling components.
12. Use bridge travel limit switch whenever possible.
13. Adjust hoist trolley and crane end stops correctly.
14. Perform a test run for assembled crane before shipping to job site.
15. Adjust crane collector pole at job site and cut excess tubing.
16. Run crane the length of the runway and adjust end stops.



BEFORE STARTING ASSEMBLY, MAKE SURE THAT YOU HAVE ALL CORRECT ASSEMBLY INSTRUCTIONS AND THE COMPLETE MODULAR CRANE COMPONENT PACKAGE. DO NOT MIX OR REPLACE COMPONENTS FROM ONE SET TO ANOTHER BEFORE CONFIRMING THAT THEY ARE INTERCHANGEABLE. MAKE SURE YOU ARE ALWAYS USING CORRECT COMPONENTS.

CRANE LAYOUT

There are two possibilities for crane layout depending on the location of the crane power supply in the building and the required push button side of the crane. All assembly instructions in this guide are shown in the crane layout drawing. If the other crane layout is desired, assemble bridge accessories in a mirror image. To maintain correct crane movement directions, bridge drive motor plugs (X-15, X-16) should be simply switched with each other at the bridge panel. Before starting crane assembly, make sure that the crane layout is the correct one for the application.

- Assemble the main girder and main girder/end truck connection per instructions in this guide.
- Install the hoist per instructions in the "Hoist Owners Manual".
- Assemble crane festoon system per instructions in this guide.

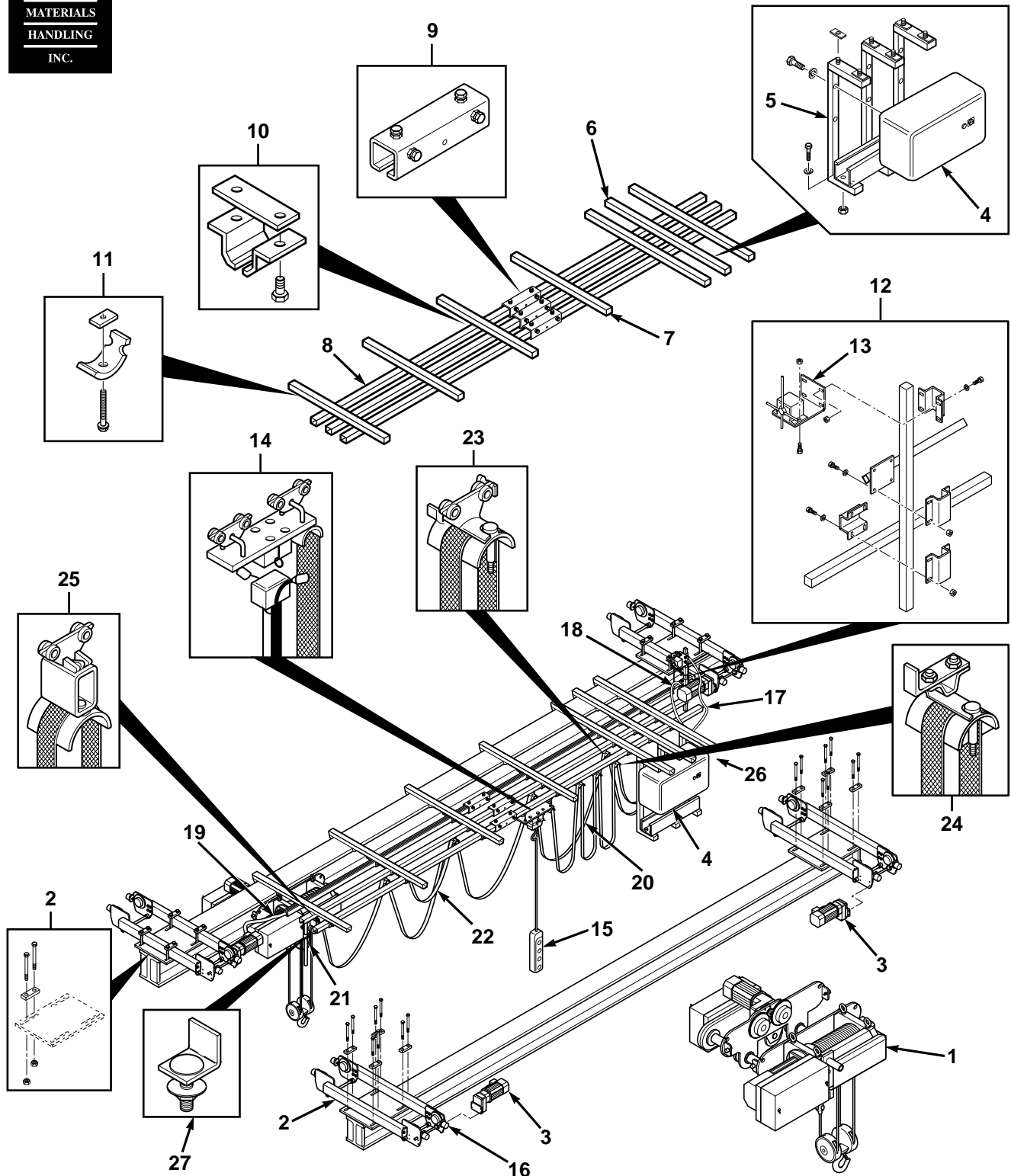
CRANE TEST RUN

All modular crane components and cable connections are already factory tested before shipping, but to complete the quality cycle of R&M Materials Handling, a test run **must be done** before shipping the crane to the job site.

1. Turn off the main power disconnect switch from bridge panel.
2. Connect **correct** power to crane main power supply cable.
3. Turn on the power.
4. Turn on the main power connect switch from bridge panel. Wait a few seconds.
5. Press the green button from the push button to turn on the main line contactor.
6. The green button needs to be pressed every time after cutting off power or shutting down crane by e-stop.
7. Press slowly the hoist lowering button for a very short time, watching the rope underneath the drum.
8. If rope tends to tighten, turn off the power and main power disconnect switch and change phasing of the crane main power supply by switching any two of the of the three wires.
9. Turn on the power and main power disconnect switch again. Remember to press the green button.
10. Press lowering button again and make sure that rope is loosening from drum.
11. **NOTE:** When hook is on the ground and wire rope is loose, be very careful when raising or lowering hook, as it may result in a rope jam around the drum. Always follow the rope underneath the hoist.
12. Raise the hook carefully off the ground and check operation of hoist upper limit switch.
13. Now, perform all other hoisting and trolley directions, both fast and slow speed, and make sure they are working correctly.
14. Check the bridge drives and make sure that the wheels are turning opposite direction. Check fast and slow speed. (Fast speed does not work if bridge limit switch is not in center position.)
15. Check the operation of the bridge travel limit switch by turning the actuating arm of the switch while pressing bridge drive to fast speed.
16. The speed of both drives should be switched from fast speed to slow speed, for two speed, off for single speed, and to decel with inverter, when limit switch arm is turned to either direction from center position.
17. Listen to the sound of hoist and drive motors and ensure that motor brake is opening properly when motor is running.
18. Check that the emergency stop button of push button station is working. Remember to press the green button again to run the crane.
19. If horn is supplied with your crane, press the green button to sound the horn.

Crane traveling motions are set for operator standing on the push button side of the bridge, watching the load (up, down, left, right, forward, backward). If crane traveling motions from push button are not as desired, do not start to change hard wiring from hoist or bridge panels before checking the following possibilities.

1. Change main power phasing if all crane motions are opposite.
2. Change bridge travel motions by switching X-15 and X-16 plugs at bridge panel.
3. Check that bridge limit switch is connected and in "center" position if fast speed of drives is not working.
4. If crane does not start to operate, check that main line disconnect switch is "on" at bridge panel and that you have pressed the green button to turn main line contactor "on".

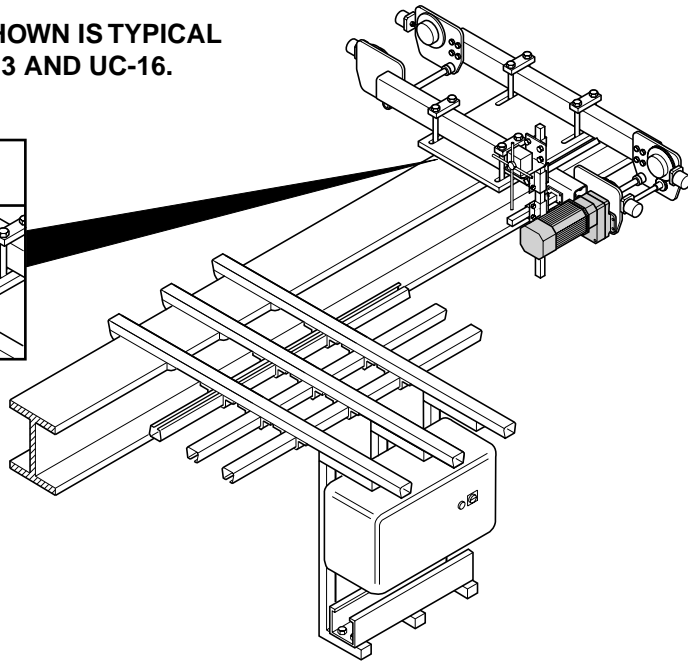
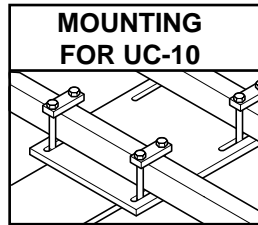


- 1. Hoist
- 2. End carriage & fasteners
- 3. Bridge drive
- 4. Bridge panel
- 5. Bridge panel support
- 6. Bridge panel support rail
- 7. Profile support rail
- 8. C-track
- 9. Joint clamp

- 10. Track support clamp
- 11. Beam clip
- 12. Crane power towing arm
- 13. Bridge travel limit switch
- 14. Pendant trolley
- 15. Push button station
- 16. End truck bumper
- 17. Cable for limit switch
- 18. Cable for drive motor 1

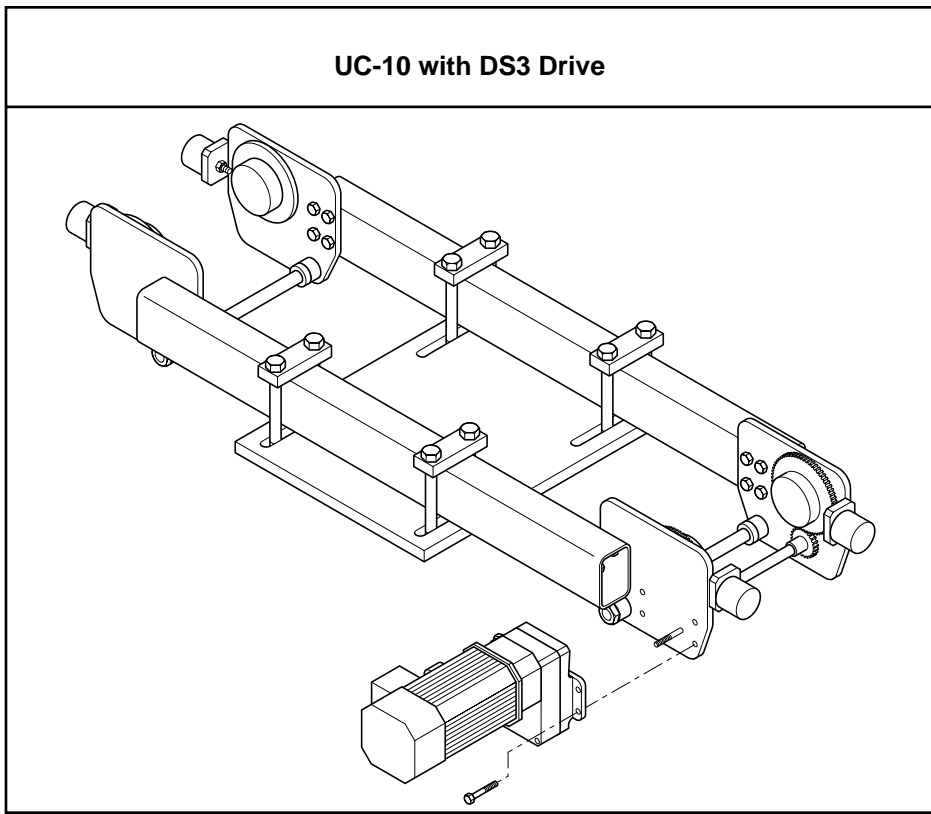
- 19. Cable for drive motor 2
- 20. Cable for pendant trolley
- 21. Cable for hoist power
- 22. Cable for hoist control
- 23. Cable trolley
- 24. End clamp
- 25. Towing trolley
- 26. Cable for crane main power supply
- 27. End stop for pendant trolley

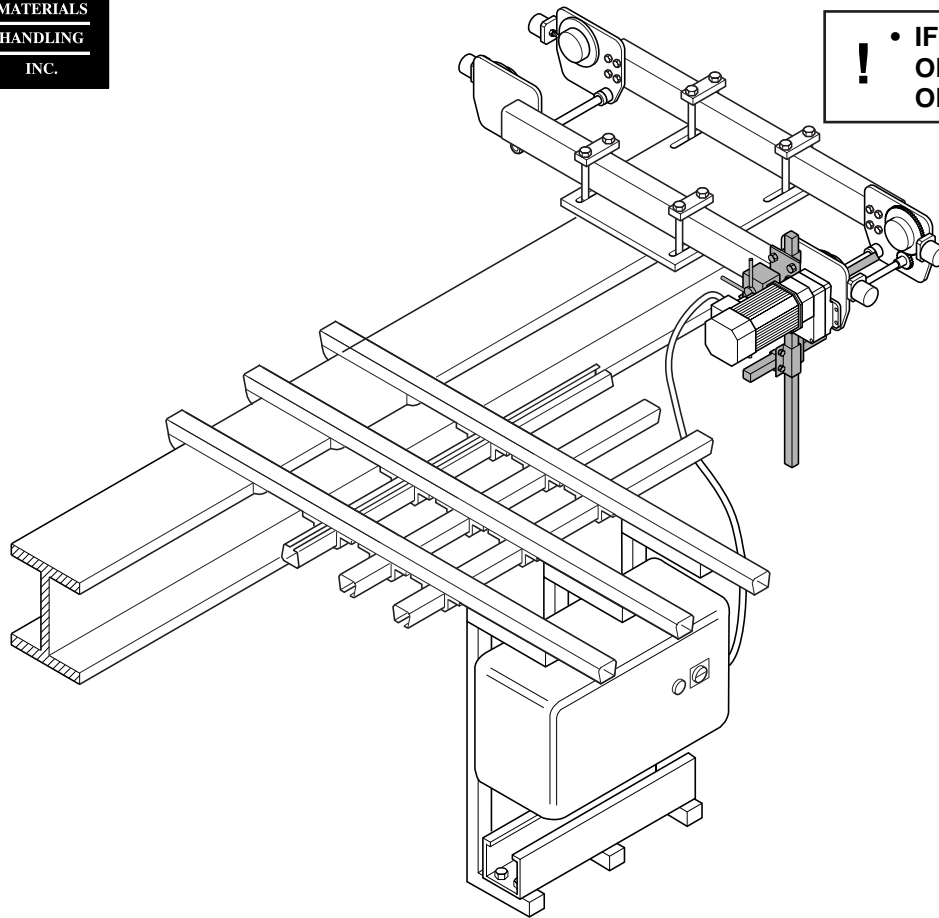
NOTE: MOUNTING SHOWN IS TYPICAL FOR UC-10, UC-13 AND UC-16.



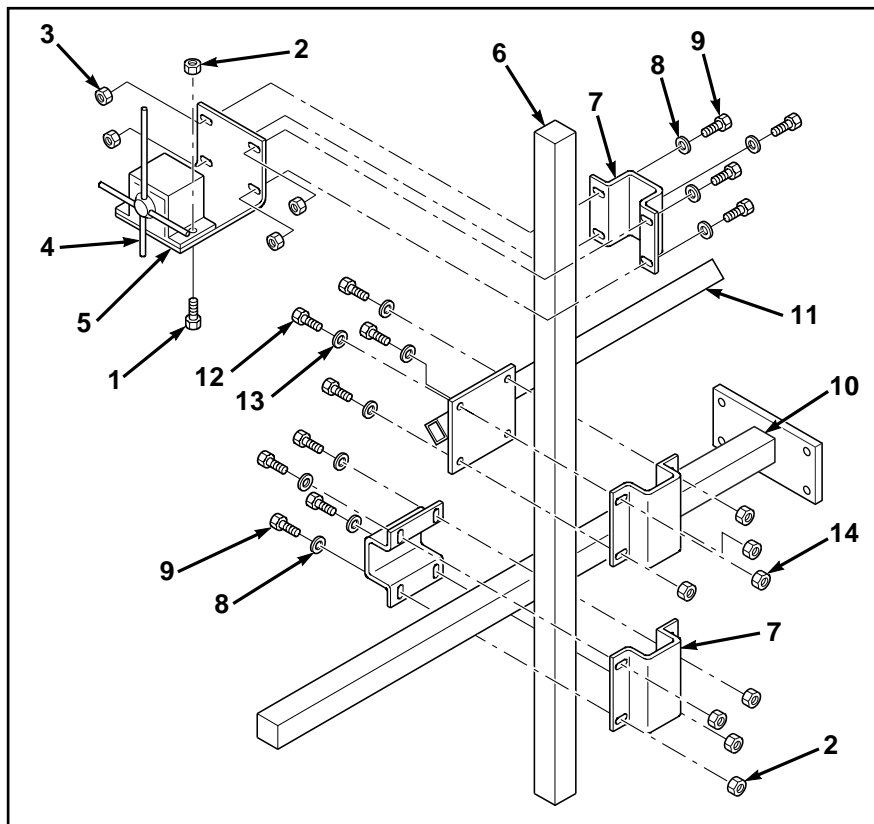
- **CLEAN THE SPLINE AND MOUNTING FLANGES. GREASE THE SPLINE LIGHTLY BEFORE ASSEMBLY.** !
- **USE A PLASTIC HAMMER TO DRIVE INTO PLACE. DO NOT USE ANY METAL OR LEAD HAMMER.** !

UC-10 with DS3 Drive





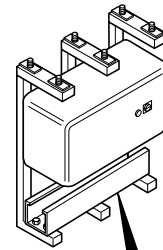
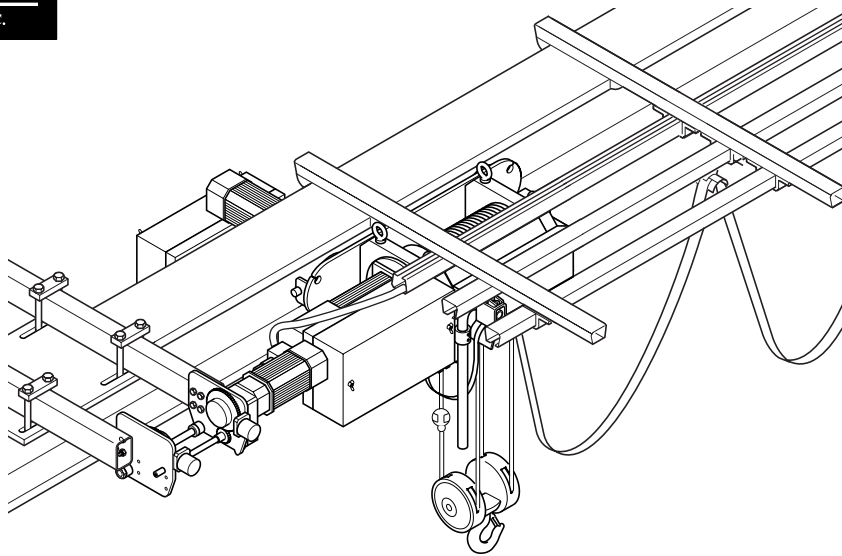
! • IF NECESSARY, CUT OFF EXCESS LENGTH OF SQUARE TUBES. !



NOTE:
ARRANGEMENT MAY VARY
WITH INSTALLATION.

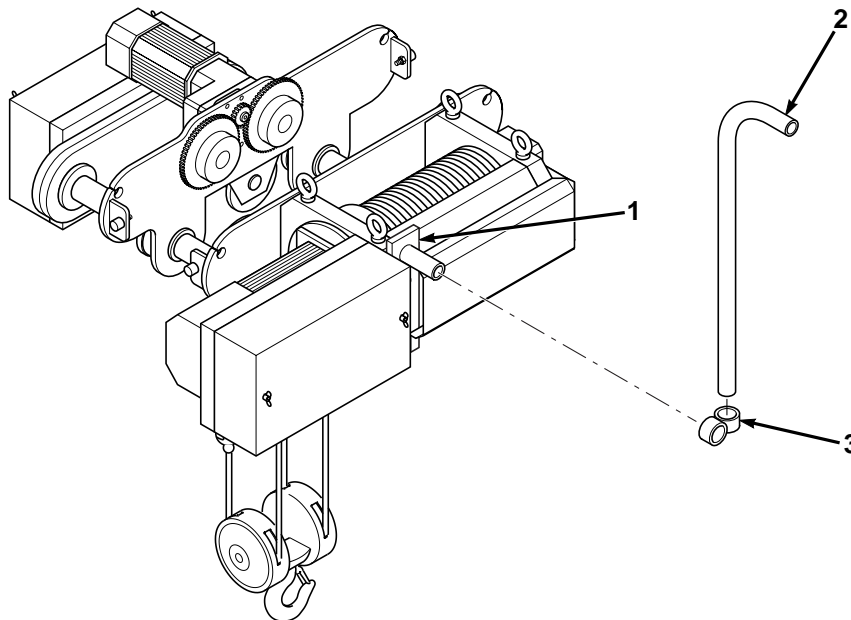
Parts Listing

- | | |
|-----------------|----------------|
| 1. Bolt | 8. Washer |
| 2. Nut | 9. Bolt |
| 3. Nut | 10. Tube |
| 4. Limit switch | 11. Towing arm |
| 5. Plate | 12. Bolt |
| 6. Tube | 13. Washer |
| 7. Clamp | 14. Nut |



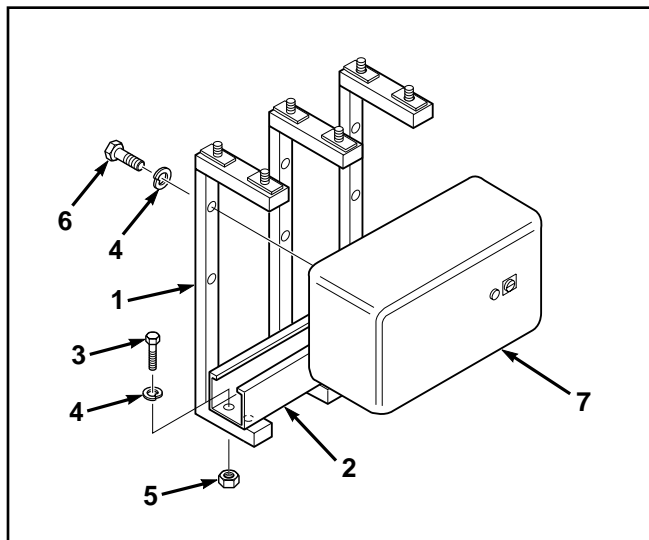
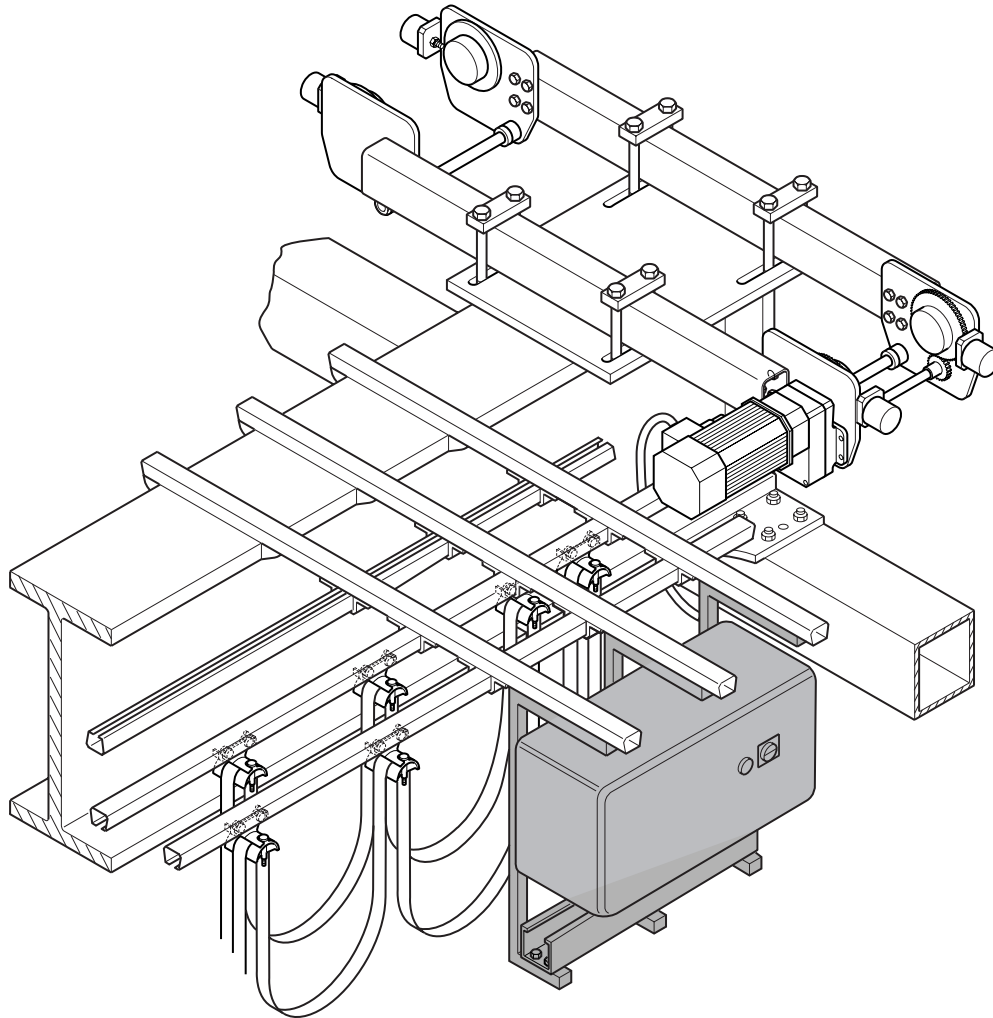
! • BRIDGE PANEL THIS END. !

! ADJUST THE HOIST POWER TOWING ARM LEAVING ENOUGH ROOM FOR CABLE TROLLEYS TO COLLECT. !



Parts Listing

- 1. Plate
- 2. Towing arm
- 3. Joint



!

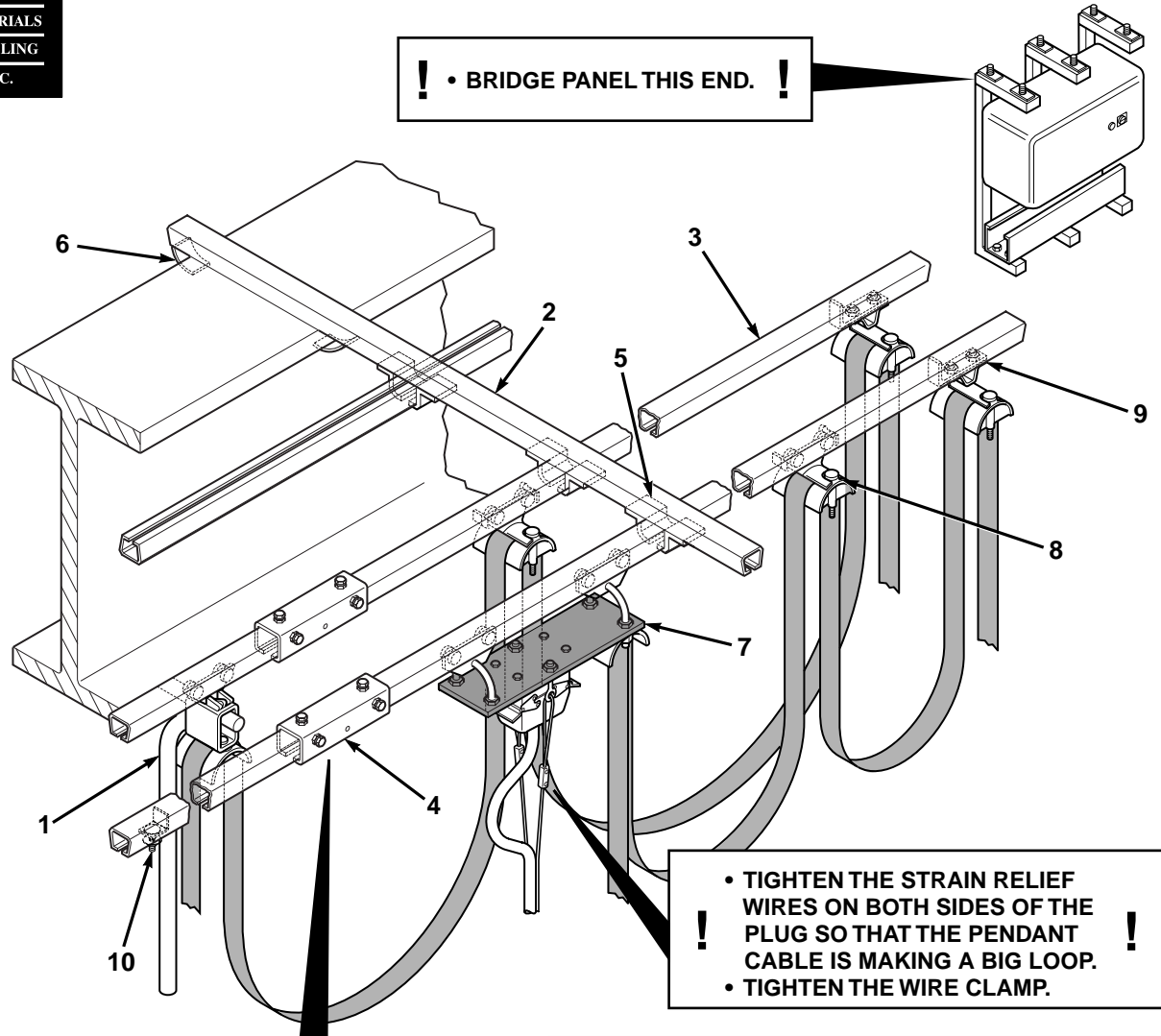
- ASSEMBLE THE FRAME TO BRIDGE PANEL FIRST.
- SLIDE ASSEMBLY INTO SUPPORTING C-RAIL.

!

Parts Listing

- | | |
|---------------|-----------------|
| 1. Frame | 5. Nut |
| 2. Cable tray | 6. Bolt |
| 3. Bolt | 7. Bridge panel |
| 4. Washer | |

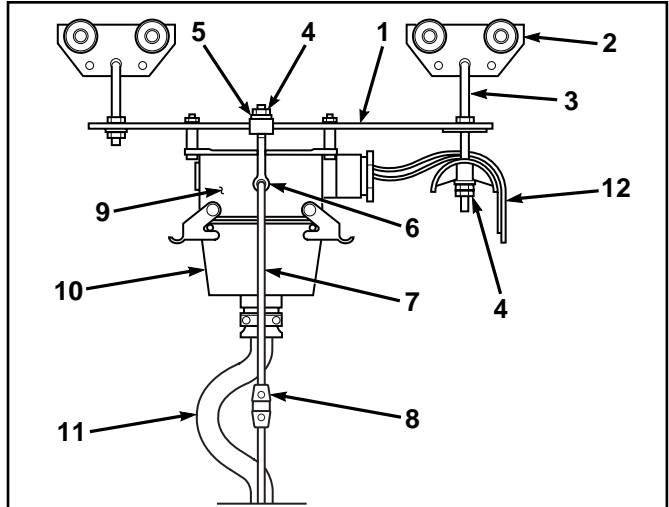
! • BRIDGE PANEL THIS END. !



! • TIGHTEN THE STRAIN RELIEF WIRES ON BOTH SIDES OF THE PLUG SO THAT THE PENDANT CABLE IS MAKING A BIG LOOP. !
• TIGHTEN THE WIRE CLAMP.

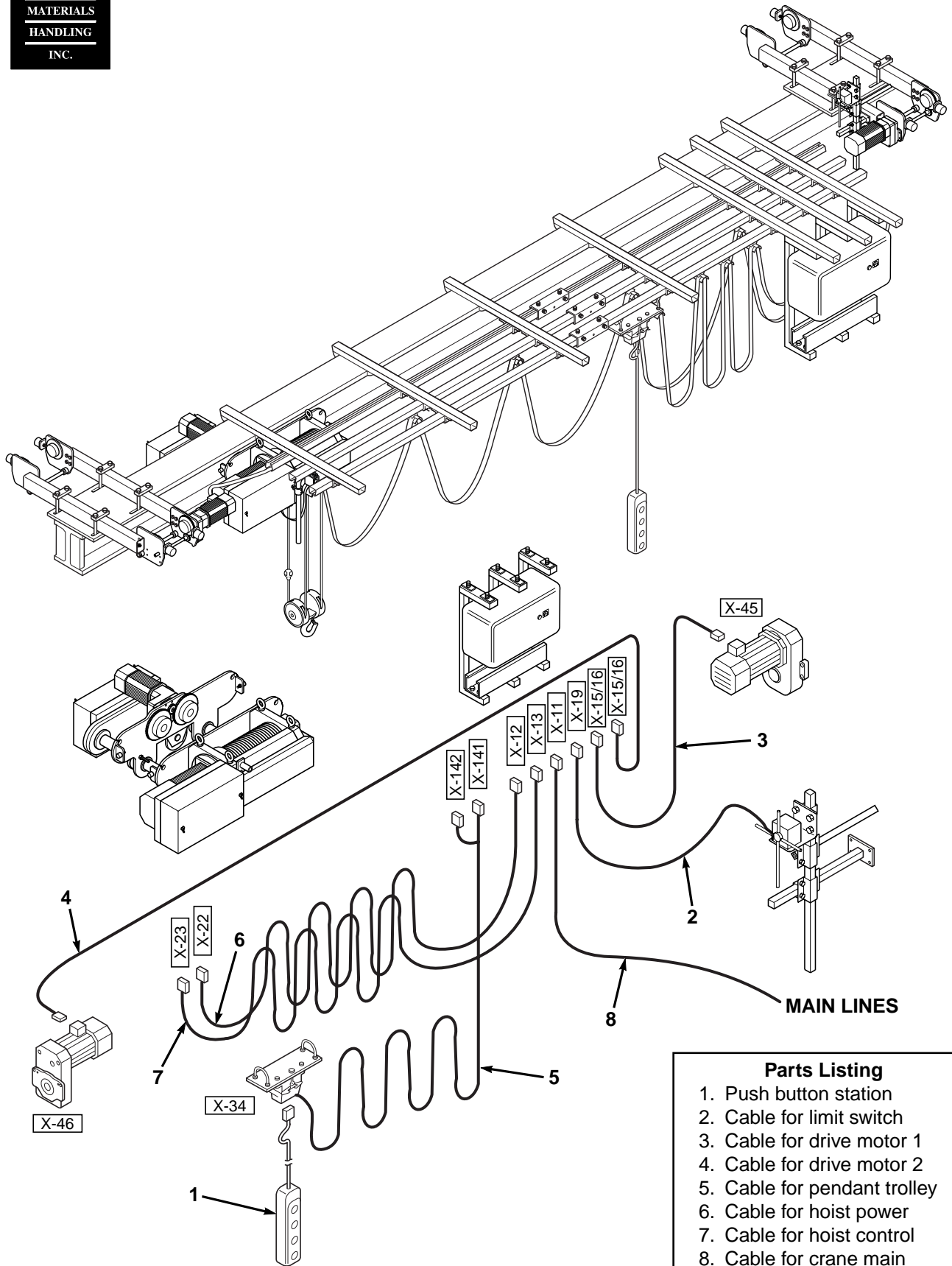
! • MAKE SURE THE JOINT IS SMOOTH FOR TROLLEY TRAVEL. !

- 1. Hoist power towing arm
- 2. Profile support rail
- 3. C-track
- 4. Joint clamp
- 5. Track support clamp
- 6. Beam clip
- 7. Pendant trolley
- 8. Cable trolley
- 9. End clamp
- 10. End stop for pendant trolley



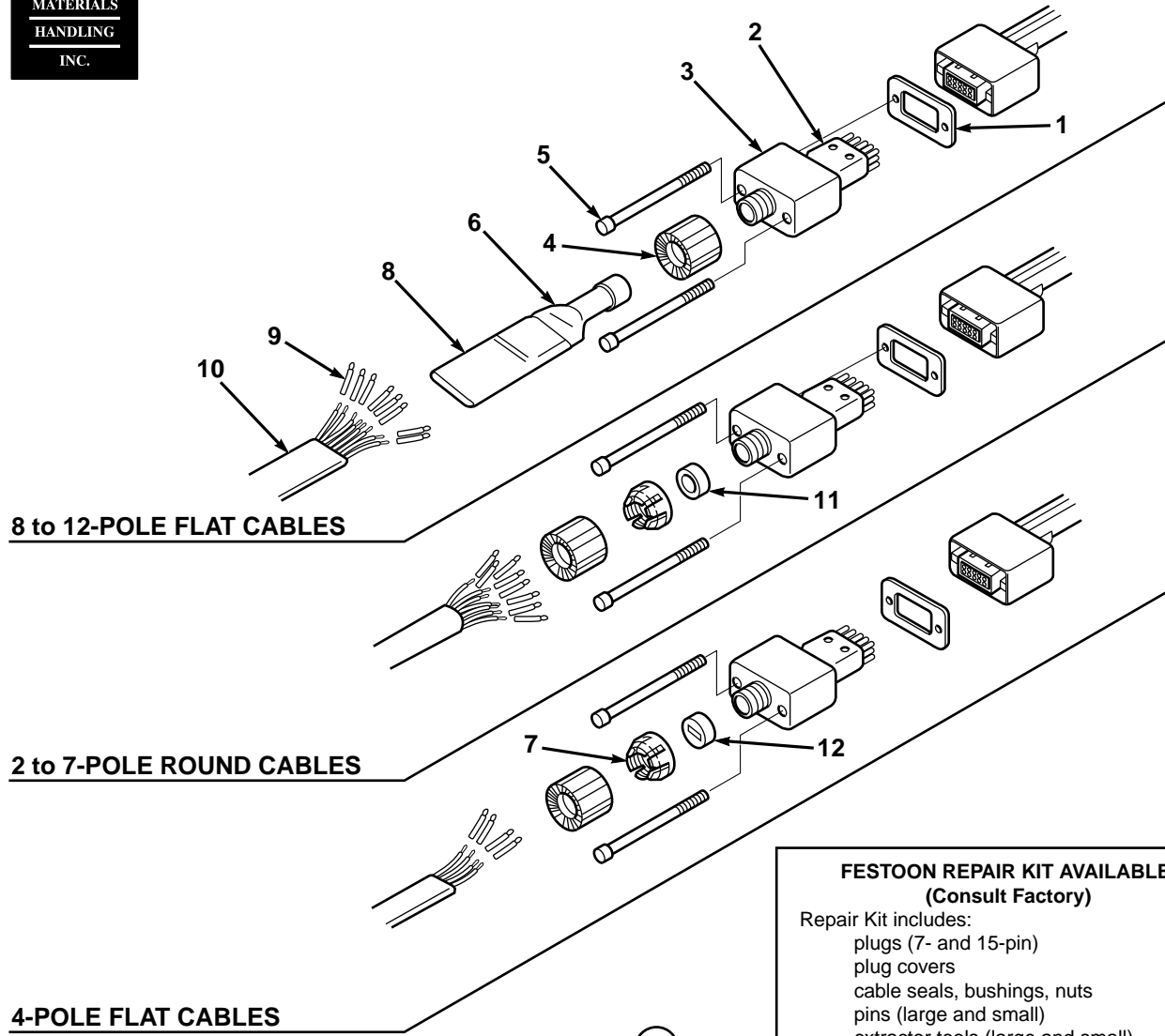
Parts Listing

- | | |
|------------------|---------------------------|
| 1. Plate | 7. Strain relief wire |
| 2. Trolley | 8. Wire clamp |
| 3. U-bolt | 9. Plug female |
| 4. Nut | 10. Plug male |
| 5. Rubber washer | 11. Pendant cable |
| 6. Eye bolt | 12. Cable to bridge panel |



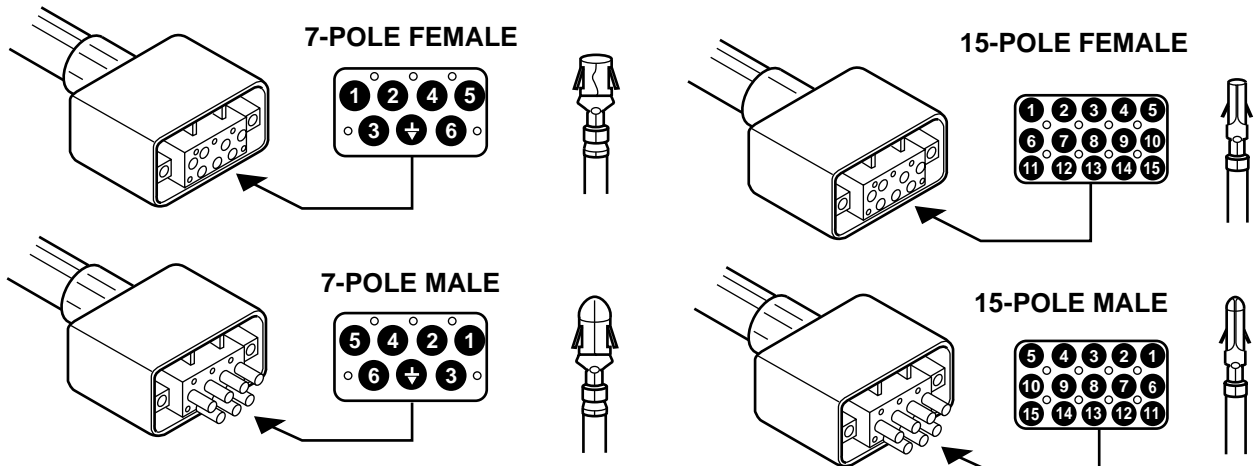
- Parts Listing**
1. Push button station
 2. Cable for limit switch
 3. Cable for drive motor 1
 4. Cable for drive motor 2
 5. Cable for pendant trolley
 6. Cable for hoist power
 7. Cable for hoist control
 8. Cable for crane main power supply

**PLUG CONNECTION ASSEMBLY
Kit, Cranes, Plastic Plug**



PLUG TYPES ②

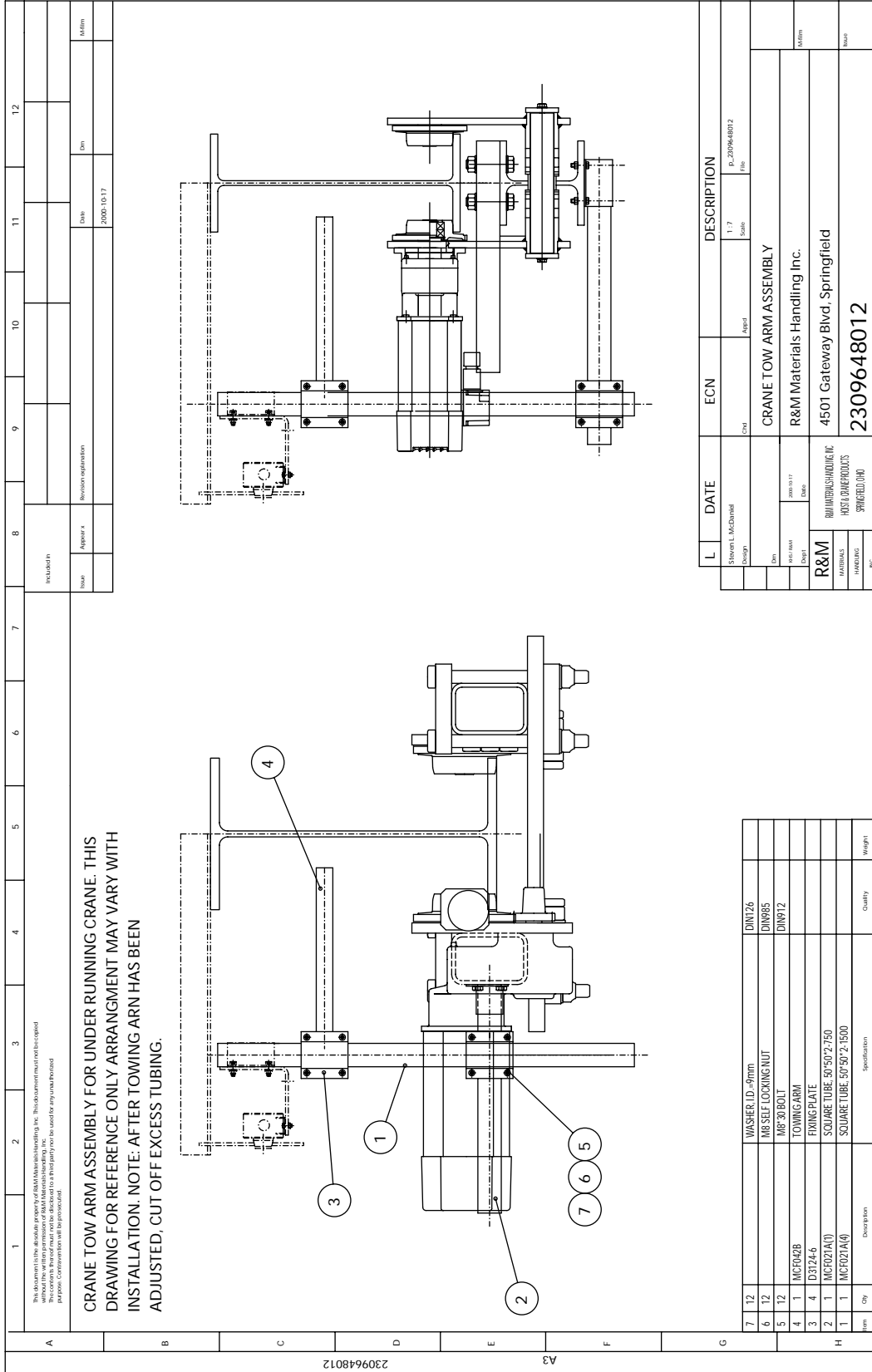
**FESTOON REPAIR KIT AVAILABLE
(Consult Factory)**
Repair Kit includes:
plugs (7- and 15-pin)
plug covers
cable seals, bushings, nuts
pins (large and small)
extractor tools (large and small)
cable end with shrink tube

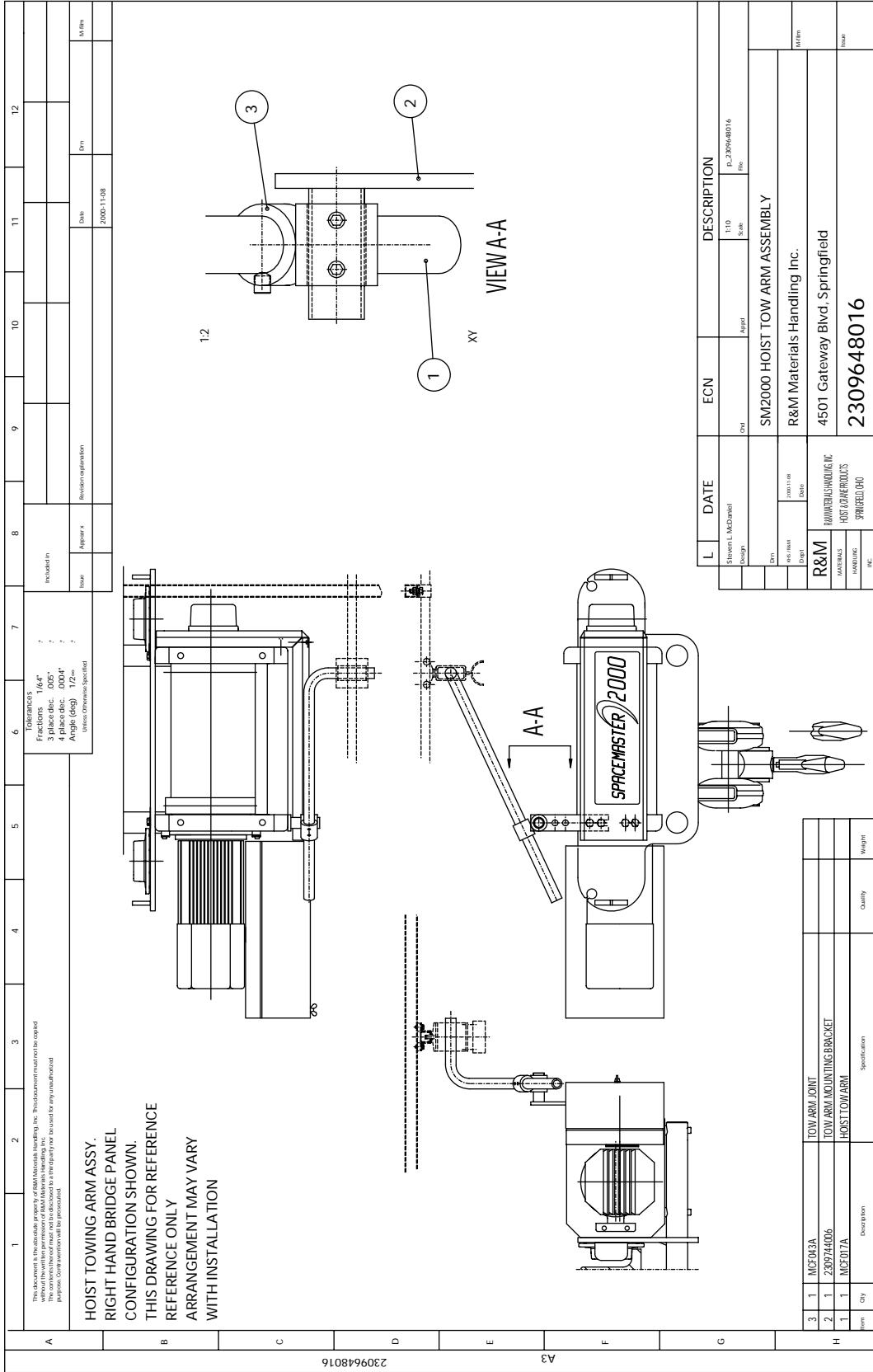


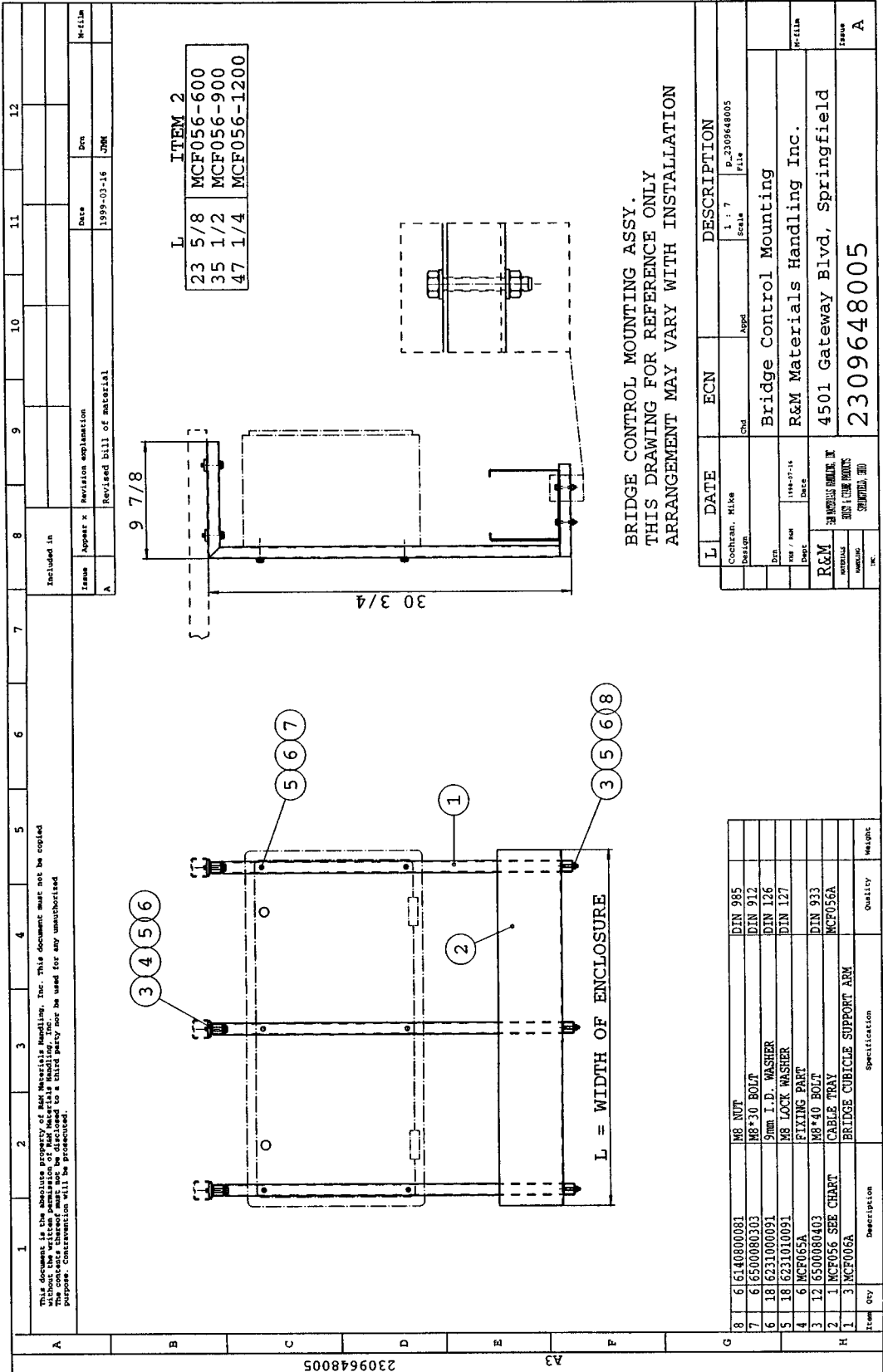
Parts Listing

- | | | |
|---------------|----------------|----------------------|
| 1. Seal | 5. Bolt | 9. Molex connector |
| 2. Plug | 6. Cable end | 10. Cable |
| 3. Plug cover | 7. Bushing | 11. Round cable seal |
| 4. Nut | 8. Shrink tube | 12. Flat cable seal |

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<p>ADDITIONAL MODIFICATIONS MAY BE MADE TO THIS CONNECTION TO IMPROVE HEADROOM. COPYING AND OTHER VARIATIONS OF THIS DRAWING ARE THE RESPONSIBILITY OF THE INSTALLER.</p>																																			
A	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width: 20%;">Revision</td> <td style="width: 20%;">Date</td> <td style="width: 20%;">Description</td> <td style="width: 20%;">Drawn</td> <td style="width: 20%;">Checked</td> </tr> <tr> <td>A</td> <td>2009-01-17</td> <td>CHANGE TRUCK LETTER TYPES</td> <td>ECM</td> <td>ESB</td> </tr> </table>											Revision	Date	Description	Drawn	Checked	A	2009-01-17	CHANGE TRUCK LETTER TYPES	ECM	ESB														
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B																																			
C	<p style="text-align: center;">LOCATE & WELD @ ASSY</p>																																		
D	<p>END STOP SUPPLIED BY INSTALLER. 5x3x3/8 ANGLE 2 1/2" LG. TYP.</p>																																		
E	<p>UC TYPE TRUCKS</p>																																		
F	<p>UT TYPE TRUCKS</p>																																		
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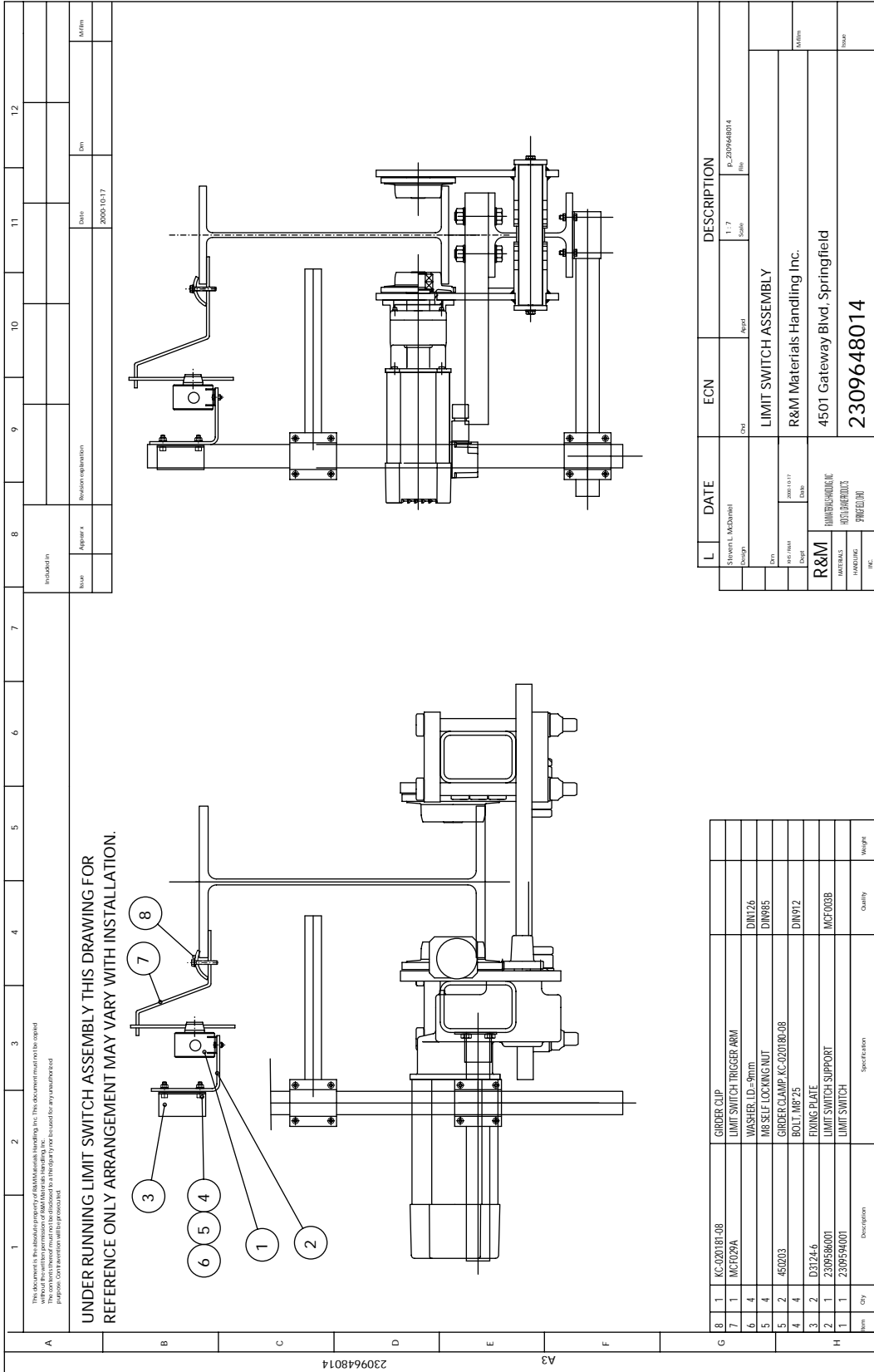






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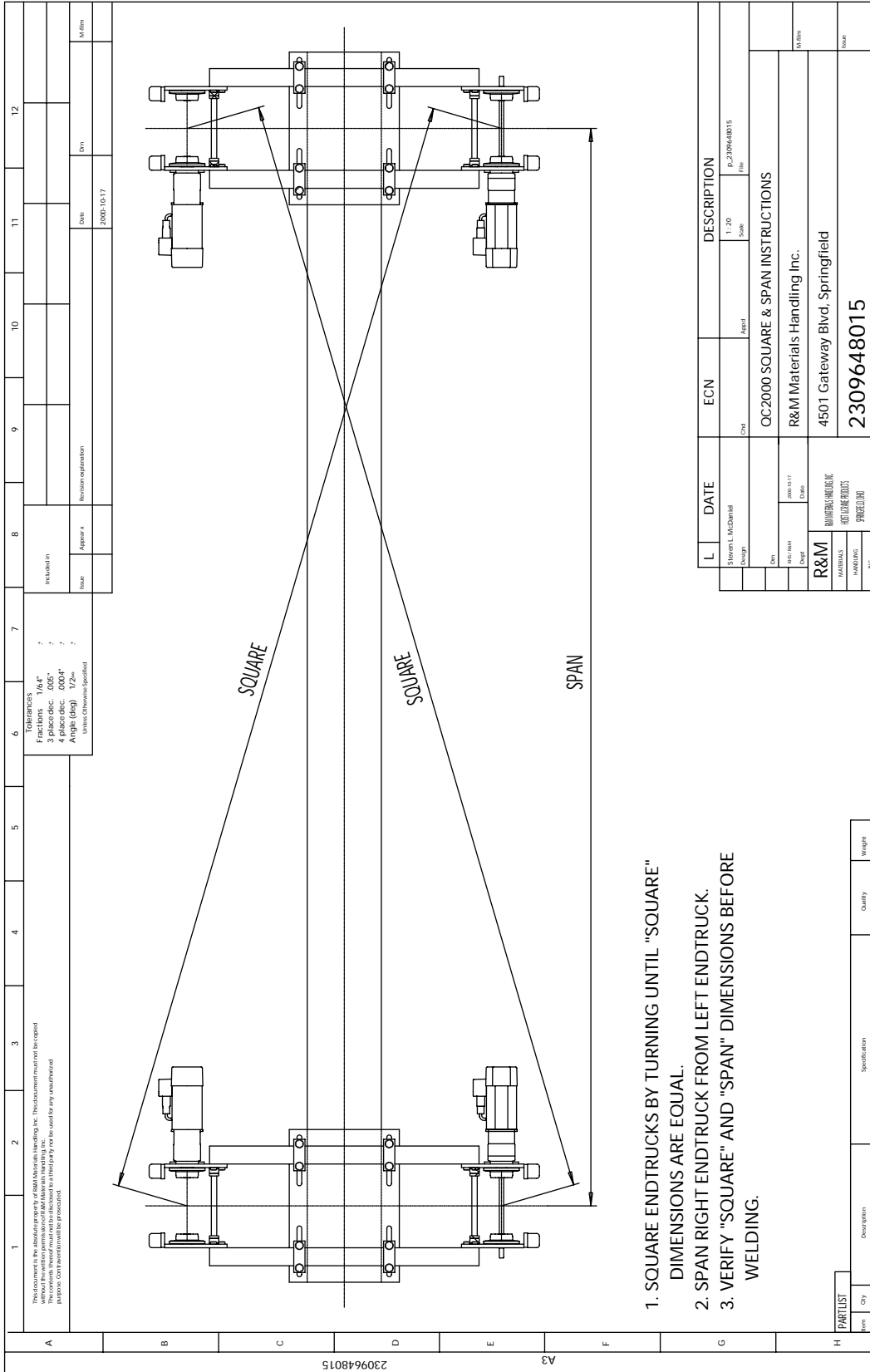
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7	6	M8*30 BOLT	DIN 912		
6	18	9mm I.D. WASHER	DIN 126		
5	18	M8 LOCK WASHER	DIN 127		
4	6	MCF056A	FIXING PART		
3	12	M8*40 BOLT	DIN 933		
2	1	MCF056 SEE CHART	CABLE TRAY		
1	3	MCF006A	BRIDGE CUBICLE SUPPORT ARM		



**UNDER RUNNING LIMIT SWITCH ASSEMBLY THIS DRAWING FOR
REFERENCE ONLY ARRANGEMENT MAY VARY WITH INSTALLATION.**

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1. SQUARE ENDRUCKS BY TURNING UNTIL "SQUARE" DIMENSIONS ARE EQUAL.
2. SPAN RIGHT ENDRUCK FROM LEFT ENDRUCK.
3. VERIFY "SQUARE" AND "SPAN" DIMENSIONS BEFORE WELDING.

L	DATE	ECN	DESCRIPTION
Design	Steven L. McDaniel 1-20 p.2309648015	1-20 p.2309648015	QC2000 SQUARE & SPAN INSTRUCTIONS
Drawn	Checked	Approved	
Checked	Reviewed	Released	
Released	Approved	Released	
R&M MATERIALS HANDLING INC. 4501 Gateway Blvd., Springfield 2309648015			