

INSTALLATION INSTRUCTIONS

Latitude® Arm System

with TELEGLIDE™ Technology

From Hill-Rom



Product No. P662A

Latitude® Arm System Installation Instructions

Revisions

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136746 REV 3

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NOTE:

The back cover is a comprehensive list of Technical Support contact information for Hill-Rom. The product discussed in this manual may not be available in all of the countries listed

Table of Contents

Structural Loading Requirements	2
System Installation	2
Install the Rough-in Plate	2
Install the J-Box	3
Install the Manifold	5
Make the Facility Connections	5
Test the Lines	8
Main System Installation	9
Install the Main Support Structure	9
Install the Optional Nurse Call Box	14
Install the Arm and Head Assembly	15
Connect the Hoses and Wiring	20
Test the Brake System	23
Test the AC Electrical System	23
Make the Gas Connections	23
Do a Test on the Unit	23
Level the Arm and Head Assembly	25
Adjust the Stops (if Required)	27
Install the Outer Covers	28
Low Voltage Cable Pulling Instructions	36
For Fixed Length Arm, Wall Service Chassis, and Nurse Call Box	36
For Telescoping Arm	36

NOTES:

Subject: Latitude® Arm System—Installation Instructions

Tools required:

Ratchet	Hacksaw or power mitre box
Drill	Safety goggles
Tape measure	Level
Ladders	Wire cutters
Phillips head screwdriver	Torx® ¹ screwdriver set
¼" hex wrench	5/16" hex wrench
3/8" hex wrench	9/16" open end wrench
9/16" socket	11/32" open end wrench
¾" open end wrench	¾" socket
7/8" open end wrench	Jigsaw or tin snips
Adjustable pliers	Wire pulling compound
Anti-static strap	Brazing equipment and supplies
As-built drawings	
Torque wrench (5–75 ft-lb range) w/socket for 3/8" hex wrench	
Lifting device capable of lifting 600 lb. 30" above the floor (for example, Lift-Rite® ² Ergonomic 3000 or equivalent)	

Parts required: Hill-Rom supplies the following parts:

(1)	P662A010X	Rough-in
(1)	P662A016X	Manifold
(1)	P662A02X0	Wall structure module
(1)	P662A0250	Wall services chassis
(1)	P662A0X00	Upper arm
(1)	P662A0X02	Lower arm (optional)
(1)	P662A0500	Covers
(1)	P662A0600	Front panel

The installing contractor must supply the following parts:

(AR)	Copper tubing
(AR)	Floor anchoring hardware (as specified in the <i>Latitude®³ Arm System Design and Application Manual</i> (136745))
(AR)	Electrical hardware (per local codes and standards)

NOTE:

The same mounting plate is used for **all** configurations of the Latitude® Arm System.

The mounting structure is **not** provided by Hill-Rom.

The installing contractor must follow all applicable local, state, and national codes.

Reference Documents: *Latitude® Arm System Design and Application Manual* (136745)

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Structural Loading Requirements



WARNING:

The structural support system must be designed by a certified structural engineer to the correct specifications. Failure to do so could result in personal injury or equipment damage.

Refer to the *Latitude® Arm System Design and Application Manual* (136745) for structural requirements that must be met before proceeding with the installation.

System Installation

Follow each section in its entirety. Keep these instructions, as the complete system installation may not be completed all at once.

Install the Rough-in Plate

Time required to install the rough-in plate is approximately 45 minutes.

Figure 1. Attaching Parts: Rough-In and J-Box Cover

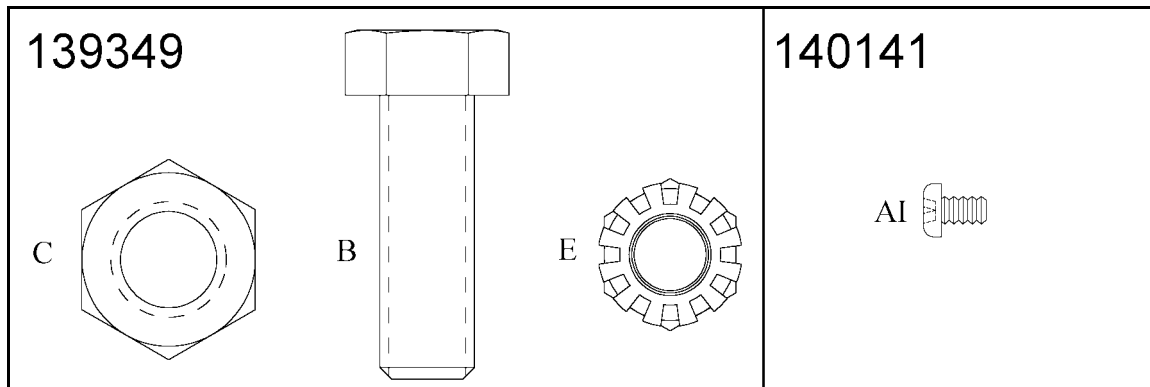


Table 1. Rough-In Bag #139349 and J-Box Cover Bag #140141

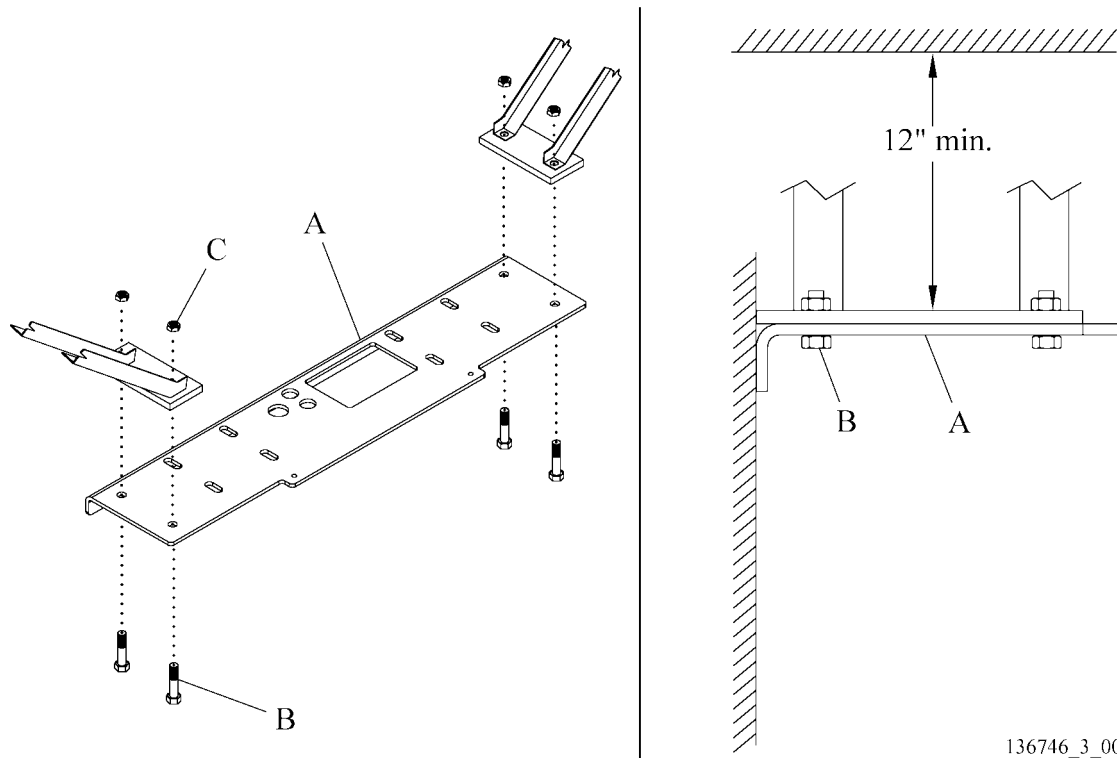
Callout	Part Number	Qty	Description
Bag #139349 (located in box with rough-in components)			
B	137724	4	Hex bolt, ½–13 x 1.5
C	137725	4	Locknut, ½–13
E	137945	6	KEPS nut, 3/8–16
Bag #140141 (located in box U-1 with upper arm)			
AI	393	4	Screw, #8–18 x 1¼ (J-box cover)

1. Find the anchor points on the structural overhead support structure where the rough-in plate (A) is being installed (see figure 2 on page 3).

Ceiling Height	Finished Floor to Rough-in Plate
8' to 8' 5 15/16"	106" to 124" (269 cm to 315 cm)
8' 6" to 10'	112" to 130" (284 cm to 330 cm)

2. Make sure the rough-in plate (A) is in the correct orientation, as shown below.

Figure 2. Rough-in Plate Installation



136746_3_001

3. Position the rough-in plate (A) so the flange on the plate is flush with the finished wall.
4. Install the four hex bolts (B) and locknuts (C) to secure the rough-in plate (A) to the structural overhead support.
5. Make sure the rough-in plate (A) is level.
6. Tighten the nuts (C) firmly.

Install the J-Box

1. Install the two pieces of 3/8"-16 all-thread (D) in the front corner locations of the rough-in plate (A) (see figure 3 on page 4).
2. Install one KEPS nut (E) from above, and tighten against the top of the rough-in plate.

NOTE:

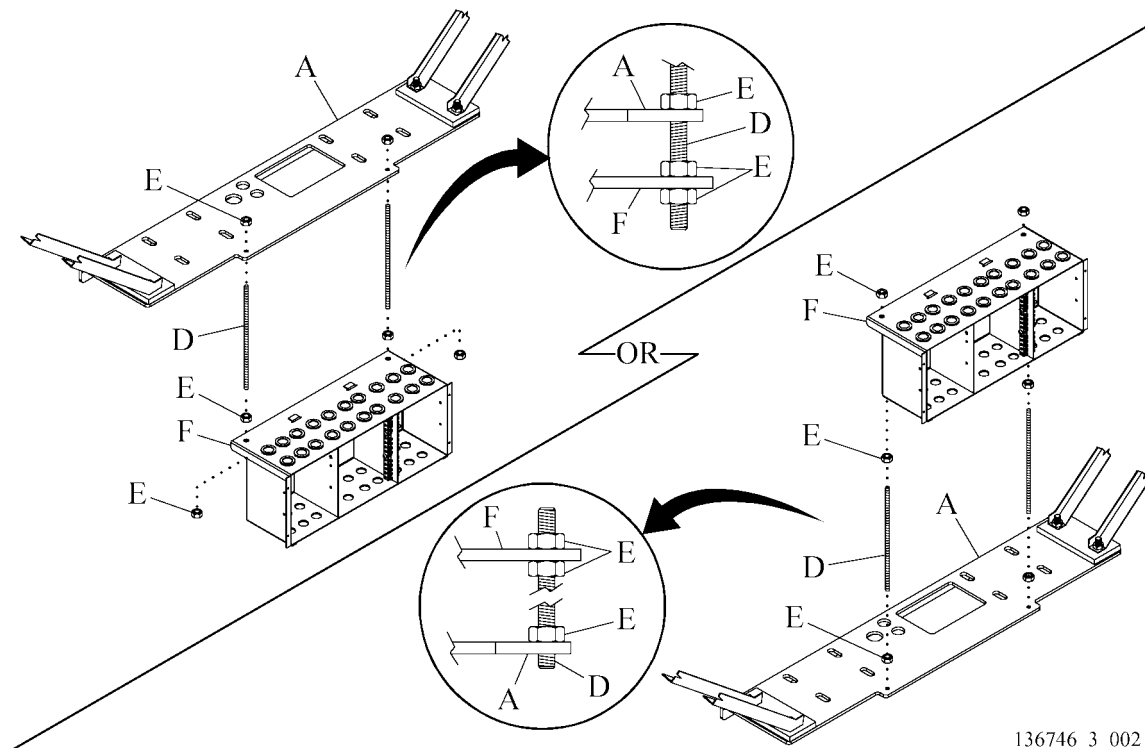
The J-box can be attached either above or below the rough-in plate, depending on the ceiling height and structural requirements.

NOTE:

Failure to mount the J-box at the correct height could cause interference with installation of other system components.

3. Adjust position of the J-box (F) on the all-thread (D) so that the **bottom** of the box is:
 - a. 113 3/8" above finished floor (AFF) for ceiling heights of 8' 6" to 10', or
 - b. 107 3/8" AFF for ceiling heights of 8' up to 8' 5 15/16"

Figure 3. J-Box Installation



136746_3_002

4. Attach the J-box (F) to the all-thread (D), with one nut (E) above and one nut below the flange.
5. Make sure the J-box (F) is level.

NOTE:

The J-box cover and screws are shipped in a separate box, U-1, with the upper arm (see figure 8 on page 12).

NOTE:

If additional or replacement all-thread is needed, use 3/8"-16 x 14" L.

Install the Manifold

Time required to install the manifold is approximately 30 minutes.

NOTE:

Make sure the rough-in copper lines have already been installed through the rough-in plate.

1. Slightly loosen the vacuum caps on the fittings that will be used before installing the manifold (G) (see figure 4 on page 6).

NOTE:

Failure to mount the manifold at the correct height could cause interference with installation of other system components.

2. Attach the manifold (G) to the wall with two supplied screws (H) so the **bottom** of the manifold is at the following height:
 - a. 86" AFF for ceilings 8' up to 8' 5 15/16", or
 - b. 92" AFF for ceilings 8' 6" to 10'

NOTE:

Depending on the wall construction, use different screws or anchors (supplied in accessory bag) if necessary.

3. Make sure the protective caps remain on the gas manifold (G).

Make the Facility Connections



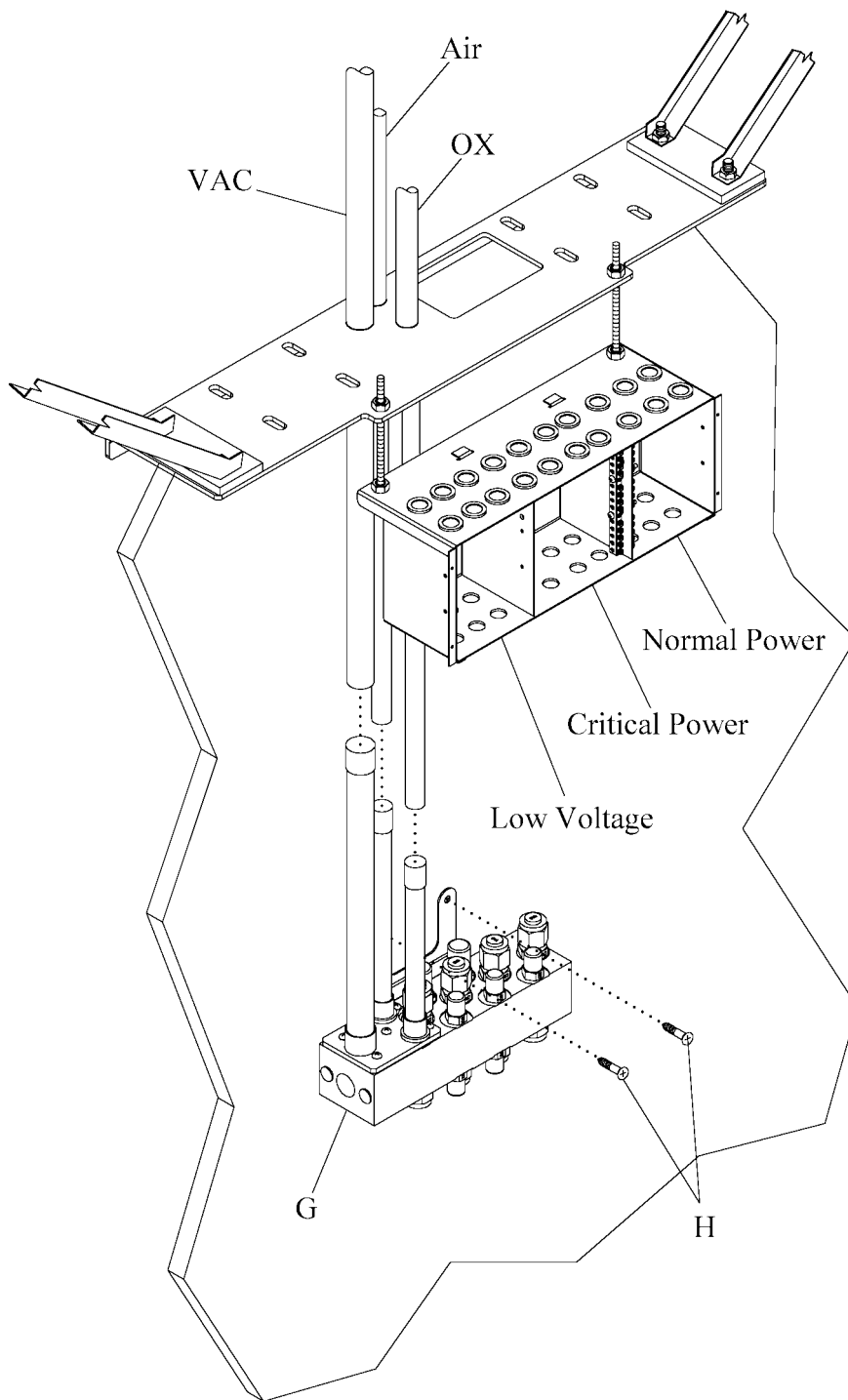
WARNING:

Do not cross-connect the medical gas types or vacuum systems. Personal injury and equipment damage could occur.

1. Install the contractor-supplied service drops for medical gas and vacuum lines. Make sure the correct lines match the corresponding riser tubes:
 - For gas label and color codes in the **United States**, refer to table 2 on page 7.
 - For gas label and color codes in **Canada**, refer to table 3 on page 7.
2. At each gas riser and the gas manifold, do the following:
 - a. Remove and discard the plastic cap from the end of the tubes being brazed.
 - b. Prepare the tube for brazing according to the latest edition of the National Fire Protection Association (NFPA®¹) 99 or Canadian Standards Association (CSA) Z305.1, as applicable.

1. NFPA® is a registered trademark of National Fire Protection Association, Inc.

Figure 4. Manifold Installation



136746_3_003

Table 2. Gas Label and Color Codes for the United States

Gas Service	Hose Color	Label
Oxygen	Green	White lettering, green background
Air	Yellow	Black lettering, yellow background
Vacuum	White	Black lettering, white background

Table 3. Gas Labels and Color Codes for Canada

Gas Service	Hose Color	Label
Oxygen	White	Green lettering, white background
Air	Black/white	Black and white alternating lettering and background
Vacuum	Yellow	Black lettering, yellow background



CAUTION:

Do not expose the riser tubes to excessive heat. Equipment damage could occur.

- c. Wrap a wet sponge or cloth around the copper tube beyond the braze joint to reduce conduction of heat.
- d. Braze the tubes to the facility's service drops according to the latest edition of the NFPA 99 and/or CSA Z305.1, as applicable.



SHOCK HAZARD:

The potential for electrical shock exists with electrical equipment. Failure to follow facility protocols may result in death or serious personal injury.



SHOCK HAZARD:

Make sure there is no live electricity connected to the wires in the facility conduit. Personal injury or equipment damage could occur.

- 3. If necessary, turn off the electricity at the circuit breaker, and follow facility lock-out/tag-out procedures.

NOTE:

If you decide to pull conduit and make wire connections at the same time, refer to "Connect the Hoses and Wiring" on page 20.

4. Pull the facility conduit to the J- box (F), and connect to the appropriate partitions: Normal Power, Critical Power, and/or Low Voltage in accordance with the latest edition of NFPA®¹ 70, *National Electrical Code*®² (NEC) or CAN/CSA C22.1 and CAN/CSA C22.2 No. 0.

Test the Lines

1. Do a test on the medical gas and vacuum system for leaks according to the latest edition of the NFPA® 99 or Z305.1, as applicable.

NOTE:

All **positive** pressure gas risers and manifolds have internal check valves. **Negative** pressure risers do **not** have internal check valves; they are supplied with test caps attached. On **negative** pressure gas risers, **retain** the test caps for future service activity.

2. If leaks are found, fix the problem, and repeat the test until no leaks are found.
3. Do a test on the medical gas and vacuum systems for flow and cross-connections according to the latest edition of the NFPA® 99 or Z305.1, as applicable.
4. If any problems are found with flow or cross-connections of the lines, fix the problems, and test the lines again until all problems are corrected.
5. For **Canadian** installations, do the following:
 - a. Do the testing required by the following standards:
 - CAN/CSA Z305.1, *Nonflammable Medical Gas Piping Systems*
 - CAN/CSA Z305.2, *Low-pressure Connecting Assemblies for Medical Gas Systems*
 - b. Commission the equipment in accordance with the following standards:
 - CSA Z318.5, *Commissioning of Electrical Equipment and Systems in Health Care Facilities*
 - CSA Z318.6, *Commissioning of Medical Gas Systems in Health Care Facilities*
 - CSA Z318.7, *Commissioning of Communication Systems in Health Care Facilities*

1. NFPA® is a registered trademark of National Fire Protection Association, Inc.

2. National Electrical Code® is a registered trademark of National Fire Protection Association, Inc.

Main System Installation

Time required to do the complete system installation is approximately 4 hours.

Install the Main Support Structure



WARNING:

Only facility-authorized personnel should install the Latitude® Arm System. Installation by unauthorized personnel could result in personal injury or equipment damage.

NOTE:

To aid in assembly, a lettering system is used to match up arm/head and wall services assemblies to the main support structure. Match “A” to “A,” and “B” to “B,” etc.

Figure 5. Attaching Parts: Wall Structure and Wall Services Chassis

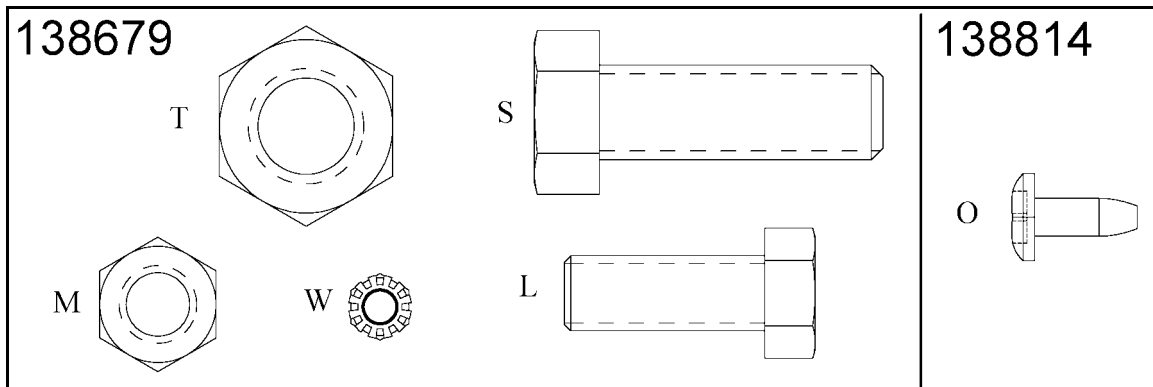


Table 4. Wall Structure Bag #138679 and Wall Services Chassis Bag #138814

Callout	Part Number	Qty	Description
Bag #138679 (located on the Wall Structure skid block)			
L	137726	8	Hex bolt, 3/8–16 x 1
M	137727	8	Locknut, 3/8–16
S	137724	8	Hex bolt, 1/2–13 x 1 1/2
T	137725	8	Locknut, 1/2–13
W	15250	1	KEPS nut, #8
Bag #138814 (located in a box with the Wall Services Chassis)			
O	4388002	4	Screw, 1/4–20 x 5/8, tap, pan, torx

1. Make sure the rough-in assembly and gas manifold are correctly installed.

NOTE:

IMPORTANT: Be careful not to install the pedestal backwards. Note the position as shown in the detail of figure 6 on page 11. The pedestal and main support structure should be **flush** on the front side when raised into position.

2. Attach the pedestal (J) to the upper main support structure (K) with eight bolts (L) and locknuts (M) (see figure 6 on page 11).



WARNING:

Use caution to make sure no wiring is pinched or caught between the wall services chassis and main support structure. Personal injury or equipment damage could result.

3. Examine the wall services chassis (N) to make sure the wires are correctly routed in their tracks to prevent pinching between the assembly and main support structure (see figure 7 on page 11).
4. Position the wall services chassis (N) on the main support structure so that its **bottom** edge is 31" AFF, as shown in figure 8 on page 12.

NOTE:

There are two sets of mounting holes. Use the holes that attach the services chassis at the correct height specified.

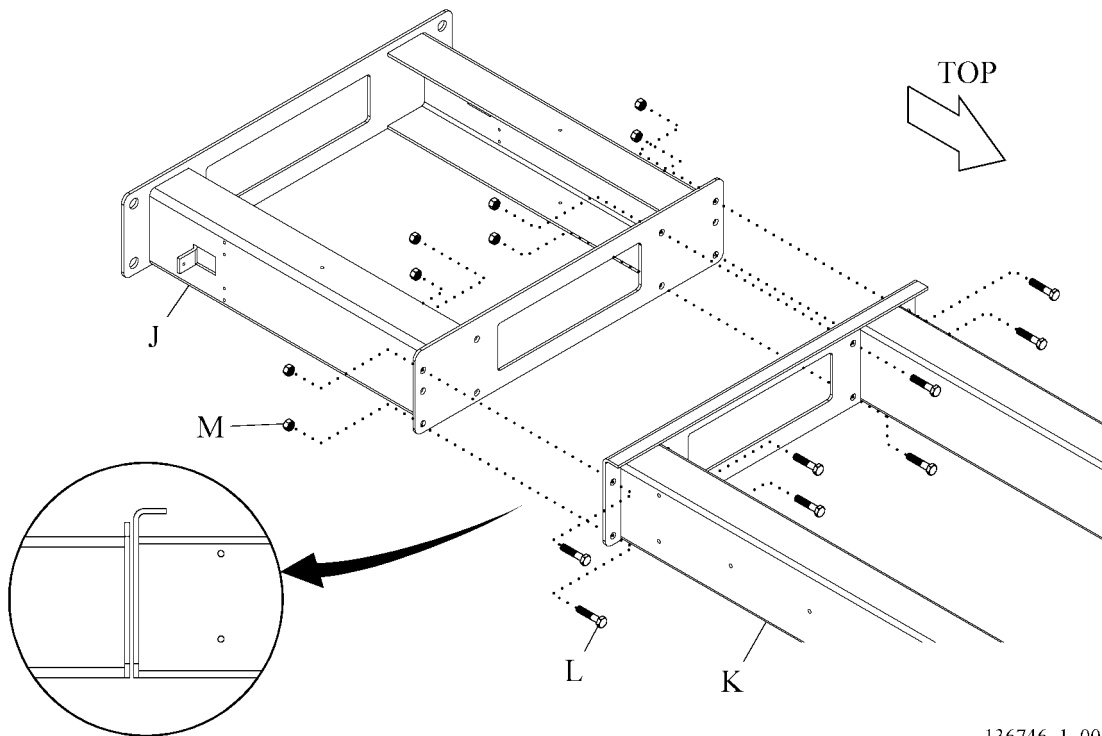
5. Attach the wall services chassis (N) to the back of the upper main support structure with four screws (O).
6. Raise the main support structure (K) into position under the rough-in plate (A) (see figure 8 on page 12).
7. Loosen the jam nuts (P) and setscrews (Q) on the extension tubes (R).
8. Raise the extension tubes (R) up to the rough-in plate (A), and temporarily tighten the setscrews (Q) to hold the tubes in position.
9. Attach each extension tube (R) with four bolts (S) and locknuts (T). Snug the nuts only—do not tighten.
10. Loosen the setscrews (Q) on the extension tubes (R).
11. Plumb the main support structure along the wall, and **make sure** the back flanges (U) rest flush against the finished vertical wall.

NOTE:

The main support structure does **not** need to be exactly vertical. It is more important for the back flanges to rest flush against the wall.

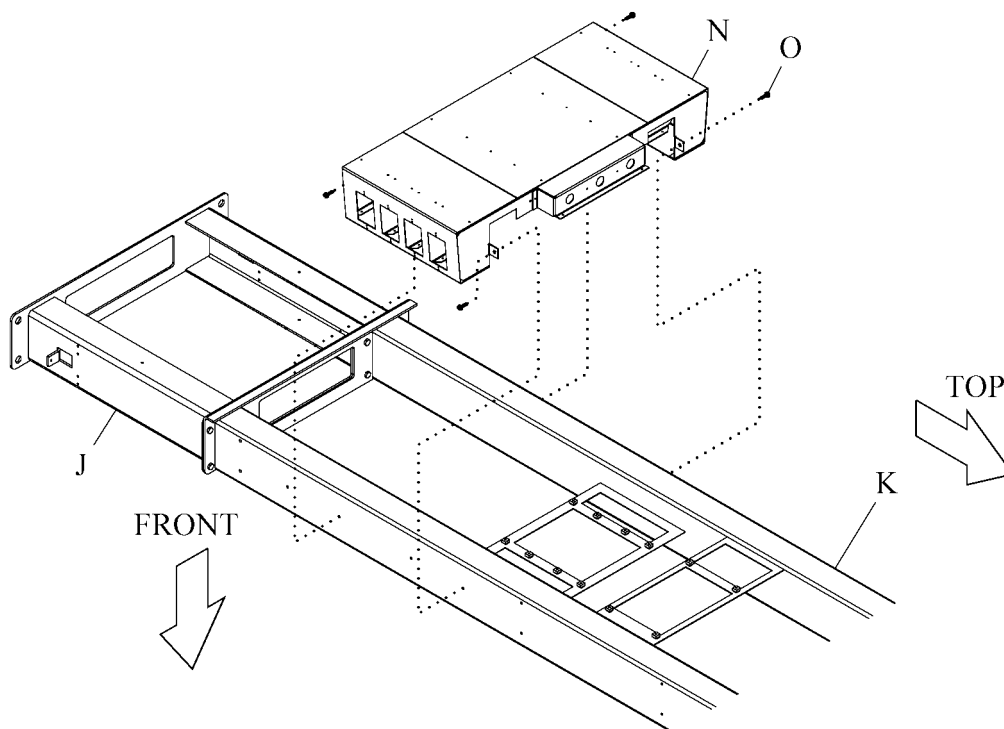
12. When plumb, mark the edges of the base (J) on the floor.

Figure 6. Main Support Structure Pedestal



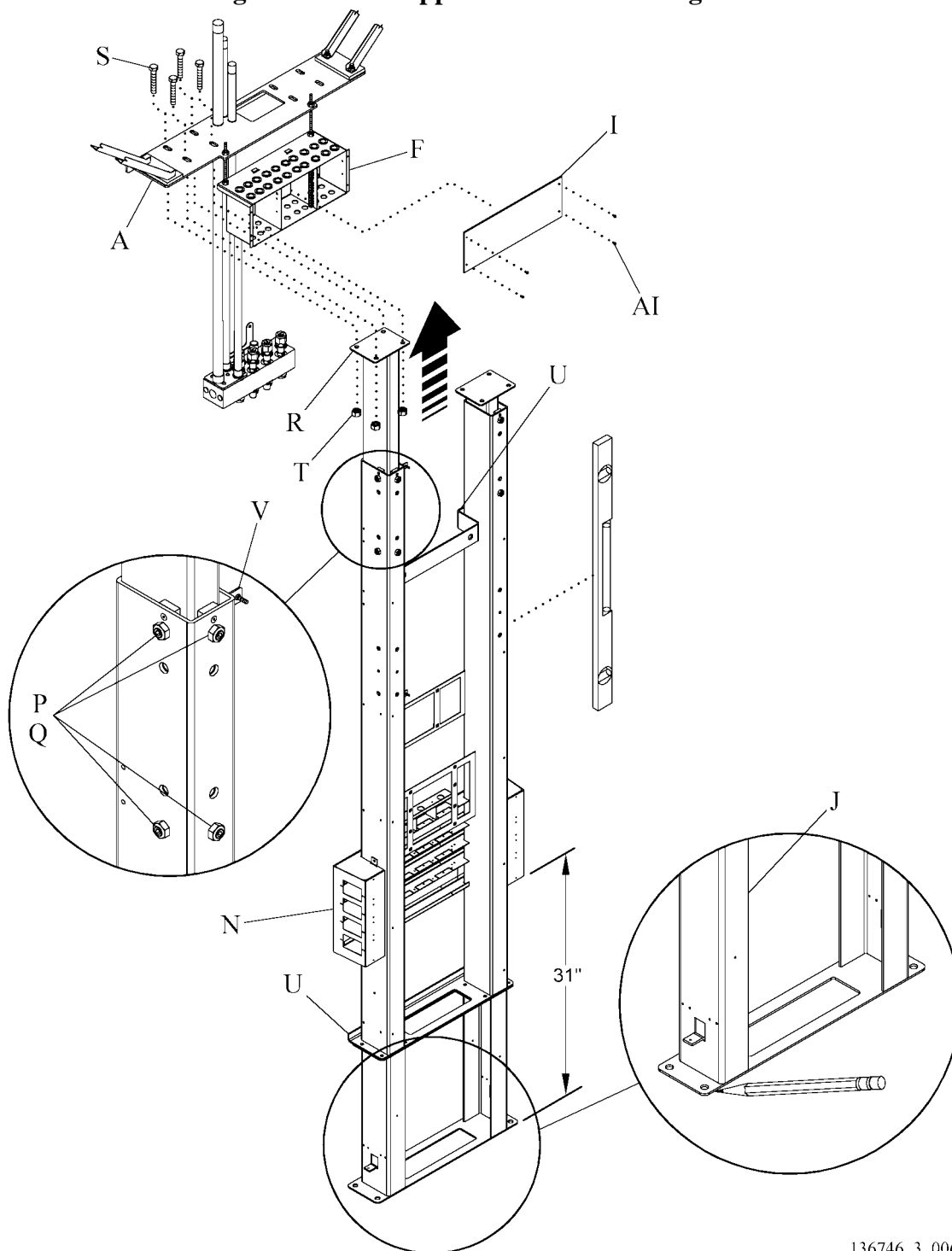
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Figure 7. Wall Services Chassis Installation



136746_1_005

Figure 8. Main Support Structure to Rough-in



136746_3_006

13. Tighten the setscrews (Q) and jam nuts (P) on the extension tubes (R).
14. Tighten all attaching hardware on the rough-in plate (A).
15. Make sure that the base (J) has not moved; check that the edges are still on the marks.

16. Check again that the unit is plumb, and the back flanges (U) are flush against the finished wall.



WARNING:

Wear eye protection. Failure to do so may cause personal injury.

17. Put on safety goggles.
18. Drill one **OR** two holes on each side of the base, and install floor anchoring hardware according to the seismic anchorage requirements in the *Latitude® Arm System Design and Application Manual* (136745) (see figure 9 on page 13).

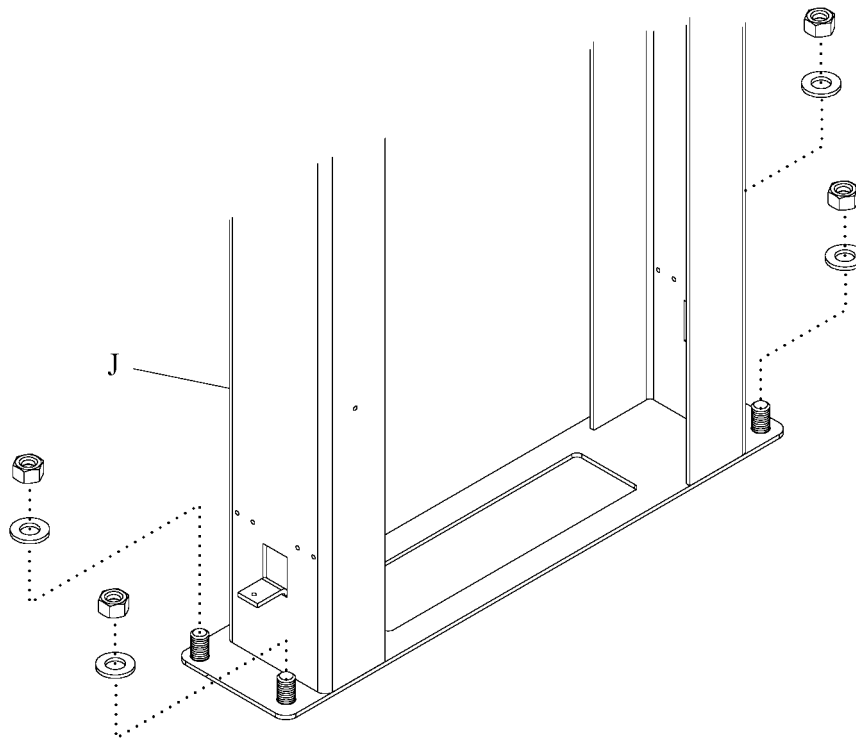
NOTE:

Check seismic requirements. Two anchors per side may be required.

NOTE:

If the anchor is larger than the hole opening in the base, make the necessary marks on the floor, and move the base to drill the larger holes.

Figure 9. Floor Anchoring



136746_1_007



CAUTION:

Make sure to run the conduit between the cross braces and the wall. Failure to do so could cause equipment damage.

19. Route the conduit from the wall services chassis (N) to the appropriate sections of the J-box (F) (low voltage, normal or critical), using the knockouts closest to the wall.



WARNING:

Do not connect AC power until the side panels are available and installed. Personal injury or equipment damage could result.

20. Use a KEPS nut (W) to attach the ground strap from the J-box (F) to the upper ground stud (V) on the inside of the left riser near the top of the main support structure (see figure 8 on page 12).

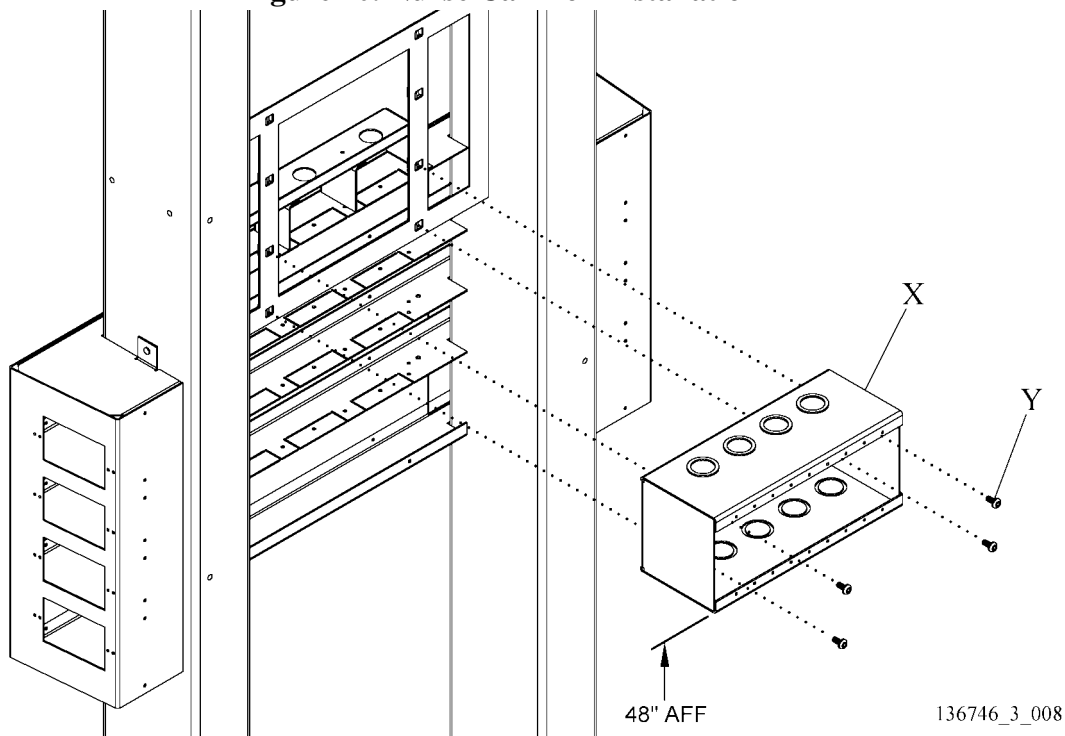
Install the Optional Nurse Call Box

1. If required, install the optional nurse call box (X) with the four screws (Y) supplied with the box (see figure 10 on page 14). The **bottom** of the box should be approximately 48" AFF.

NOTE:

There are two sets of mounting holes for the Nurse Call Box. Make sure to use the holes that will set the box at the correct height.

Figure 10. Nurse Call Box Installation



CAUTION:

Make sure to run the conduit between the cross braces and the wall. Failure to do so could cause equipment damage.

2. Route the conduit from the nurse call box (X) to the J-box (F), and attach it to the appropriate (low voltage) section of the J-box (knockouts closest to the wall).

Install the Arm and Head Assembly



WARNING:

The crated assembly is top heavy. Do not transport without assistance. Go slowly, and use care when transporting the packaged arm and head assembly, especially at turns. Failure to do so could cause personal injury or equipment damage.



WARNING:

Do not allow anyone to be under the wall arm during installation. The arm could fall, resulting in personal injury or equipment damage.



CAUTION:

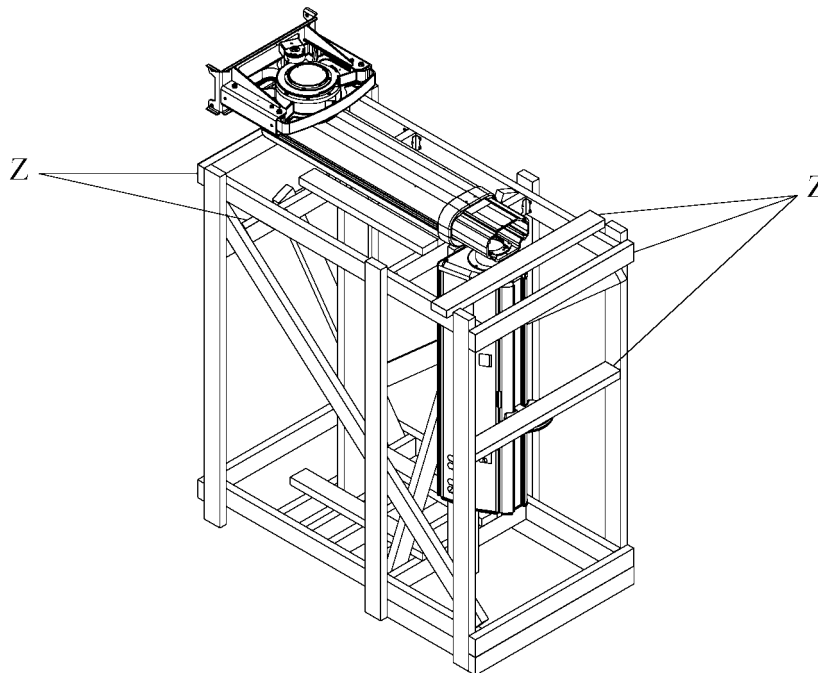
Do not remove the arm and head assembly from the shipping container until the assembly is securely attached to the main support structure. Failure to do so could cause equipment damage.

NOTE:

If two arms are included, attach the **upper** arm first. To distinguish, the upper arm is attached **under** the main pivot; the lower arm is attached **above** the pivot.

1. Remove the braces (Z) from the shipping container (see figure 11 on page 15). If necessary, you may use these braces in step 4 below.

**Figure 11. Packaged Arm and Head Assembly Brace Removal
(Upper Arm Assembly Shown)**

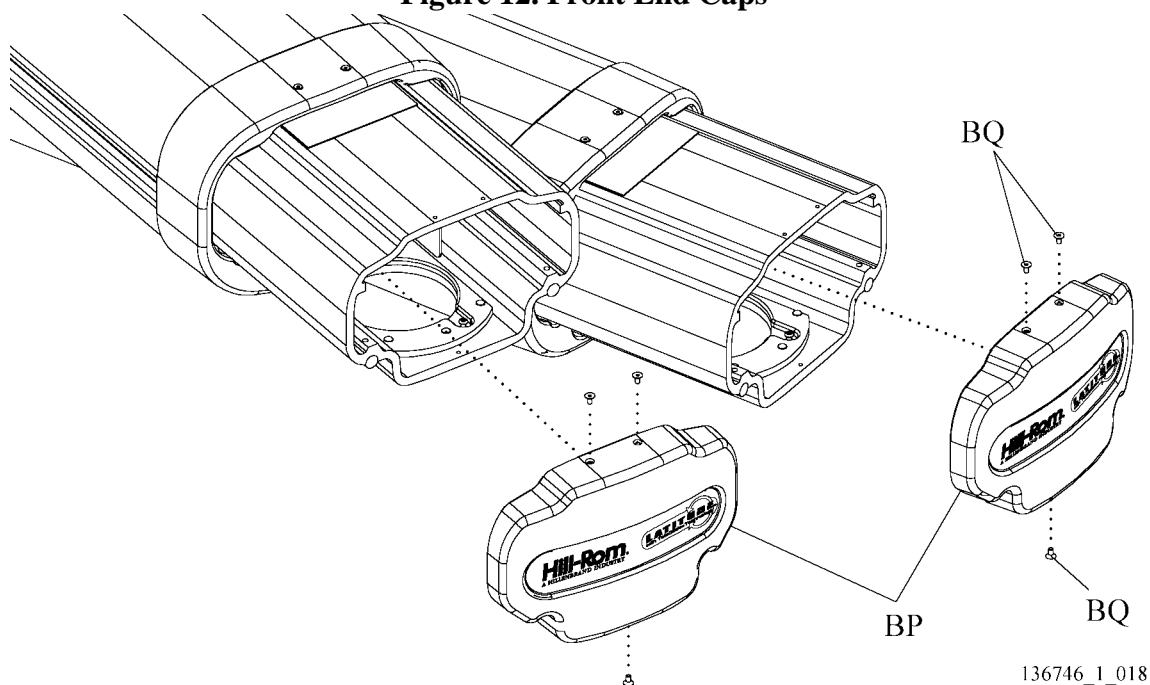


2. Install the front end caps (BP) (with the blue Latitude label) on the ends of the arms with three screws (BQ) (see figure 12 on page 16) and (see table 5 on page 18).
3. Install the rear end caps (not shown, with a blank neutral label) on the arms as follows:
 - a. Upper arm—install the rear cap on the upper pins, then pivot down and attach to the bottom with one screw.
 - b. Lower arm—attach the rear cap on the lower pin, then pivot up and attach to the top with two screws.

NOTE:

The rear caps can be a tight fit. Make sure the pins are securely engaged to prevent the caps from shifting.

Figure 12. Front End Caps



4. Balance the packaged arm and head assembly on the lift (see figure 13 on page 17).

NOTE:

The packaged weight of the arm assembly is 550 lb.

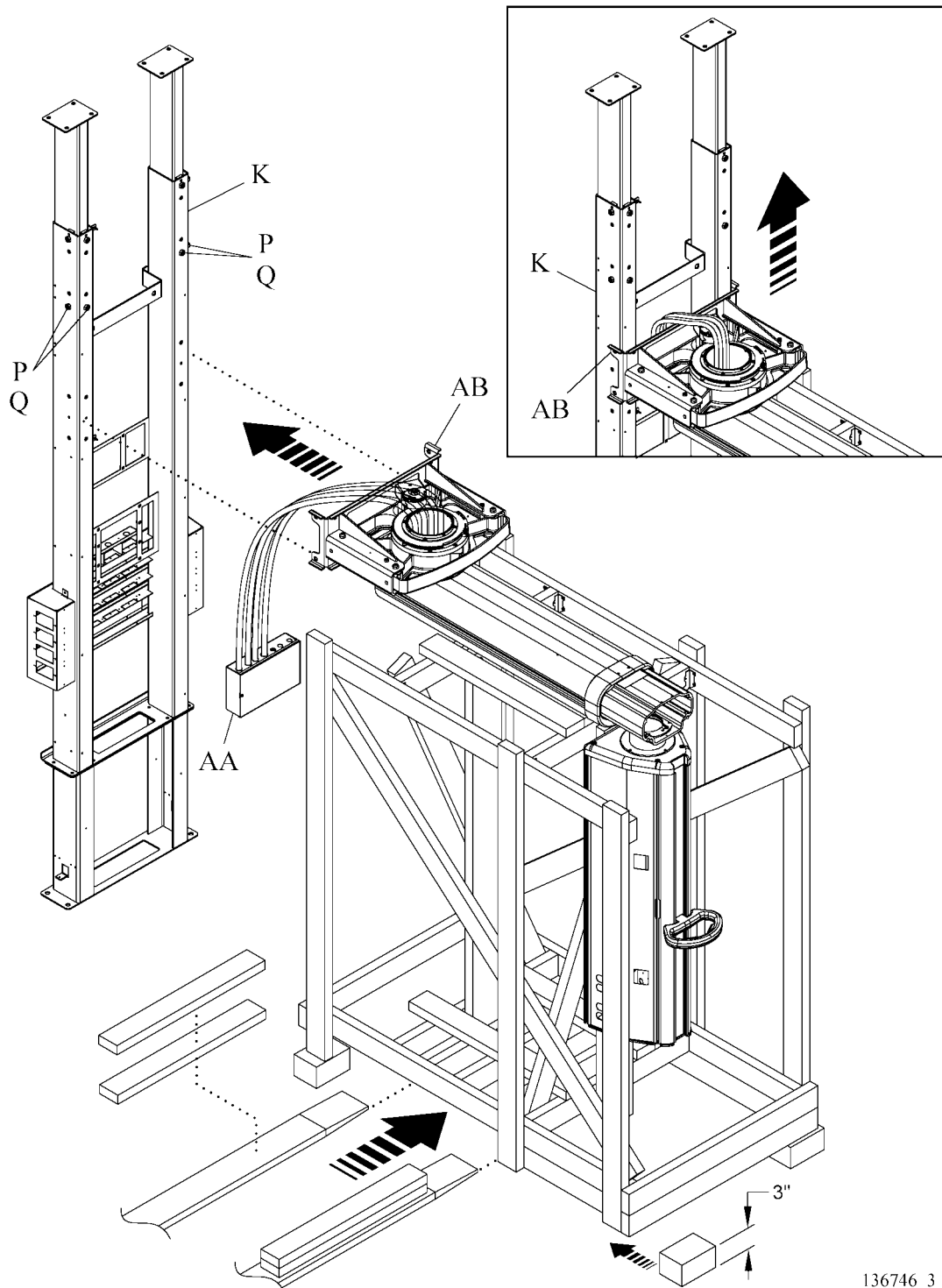
NOTE:

Depending on the type of lifting device you use, some of these steps may not be necessary.

- a. Lift the packaged arm and head assembly off the floor and put 3" wood blocks under each corner.
- b. Lower and extract the lifting device.

- c. Stack two 2 x 4s and put them lengthwise on each fork of the lifting device.
- d. Push the forks of the lifting device back under the packaged arm and head assembly, as shown.

Figure 13. Positioning the Arm and Head Assembly for Installation



136746_3_022

5. Lift the packaged arm and head assembly slightly off the floor, just enough to move it.
6. Move the packaged arm and head assembly to the installation area, in front of the main support structure (K).
7. Cut the banding on the brake box (AA) and position it (or let it hang) down and below the pivot assembly.
8. Move the assembly so that the **mounting bracket (AB) rests flush against the main support structure (K)**.
9. Remove and keep the four **lower** setscrews (Q) and jam nuts (P) from the main support structure.

Figure 14. Attaching Parts: Arms

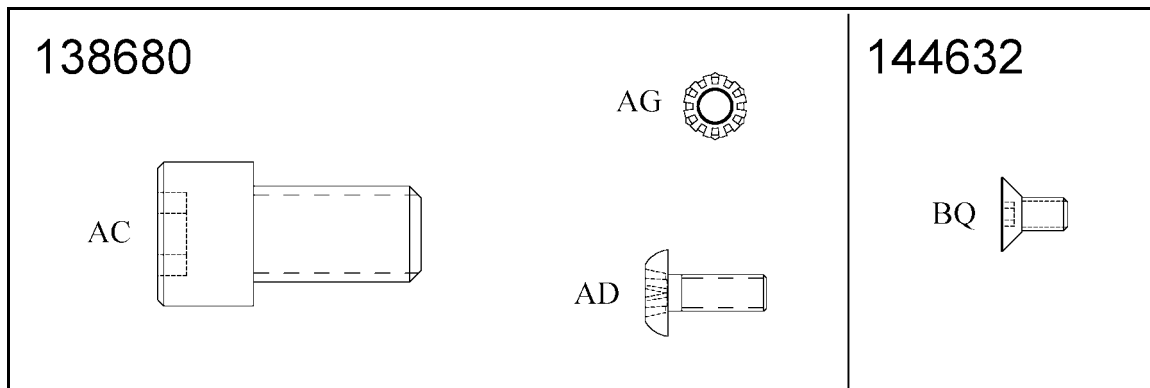


Table 5. Arm Bag #138680 and End Cap Bag # 144632
 (#138680 is located in box U-1–upper arm, or box L-1–lower arm)
 (Bag #144632 is attached to the end caps)

Item	Part Number	Qty	Description
AC	137728	8	½–13 x .875, SHCS
AG	15250	1	KEPS nut, #8
AD	51637	4	Screw
BQ	58900011000	5	Screw, 8-32 x 5/16"

NOTE:

Make sure the “ears” of the mounting bracket remain wrapped around the uprights of the main support structure while lifting the arm and head assembly to its final position. This will add stability and help in alignment.

10. Slowly raise the lift until the holes in the mounting bracket (AB) align with the top set of threaded mounting holes in the main support structure (K).
11. Adjust the position of the arm and head assembly to get all four bolts (AC) on each side started (see figure 15 on page 19).

NOTE:

Start the front bolts first, then start the side bolts. **Use care to avoid cross-threading!**

12. Securely tighten each front bolt (AC).
13. Securely tighten each side bolt (AC), so that the outer side of the mounting bracket (AB) is pulled tight against the flat side of the main support structure (K).
14. Torque all bolts (AC) to a minimum of 30 ft-lb.

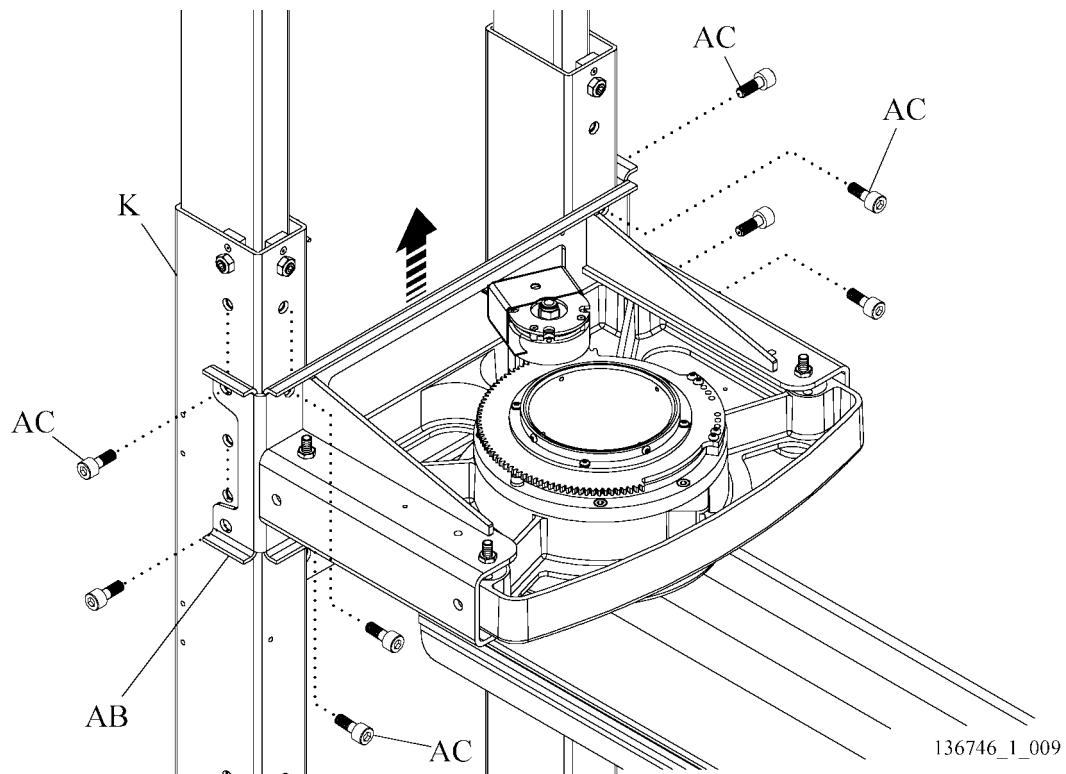


WARNING:

Make sure all mounting bolts are installed and torqued to specification before removing the shipping container. Failure to do so could cause personal injury or equipment damage.

15. Remove the banding from the shipping container.
16. Use the lift to lower the shipping container to the floor.
17. Remove the lift from under the shipping container.

Figure 15. Arm and Head Assembly Installation



**CAUTION:**

Failure to use caution when removing the arm from the shipping container could cause equipment damage.

18. Remove the shipping container:
 - a. For telescoping arms, manually pull out and extend the arm (a squeal may be heard when overriding the brake) to remove the container, or;
 - b. Partially disassemble the container to fully remove it.
19. Install and tighten the previously removed lower setscrews (Q) and jam nuts (P).
20. If a lower arm and head assembly is included, attach it in the same manner as above.
21. **IMPORTANT:** Route all gas and electrical cables **behind** the horizontal support to prevent interference with installation of the covers later (see figure 17 on page 22).

Connect the Hoses and Wiring

**WARNING:**

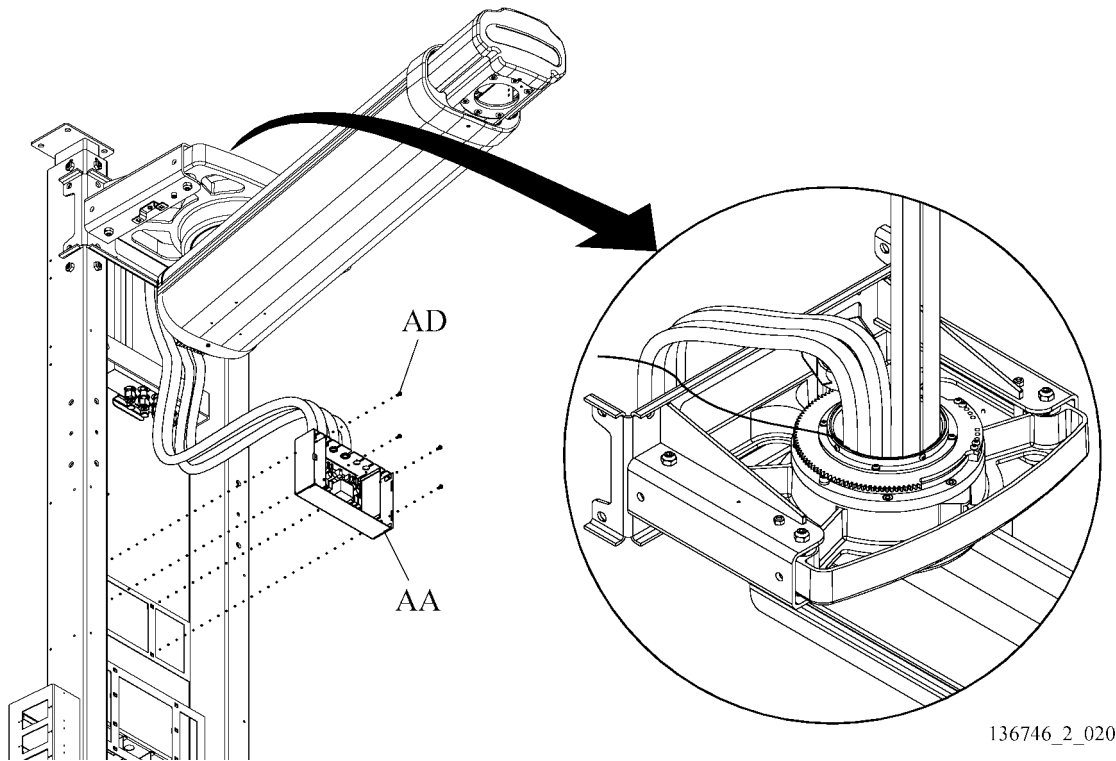
Turn off power to the rough-in box before you route any conduit to it or connect any wiring. Personal injury or equipment damage could result.

**CAUTION:**

Wear an anti-static wrist strap when you handle the brake box and circuit board. If not, equipment damage could result.

1. Put on an anti-static wrist strap.
2. Remove the lid, and fasten the brake box (AA) to the main support structure with the four screws (AD) (see figure 16 on page 21) in box U1 (see table 5 on page 18).
3. If the system does not have a lower arm, go to step 6; otherwise, go to the next step.
4. If the system has a lower arm, route its brake cables (smaller diameter cables) to the brake box (AA).
5. Connect the lower arm brake conduit to the brake box (AA). Make sure the low voltage conduit (with four small gauge wires) goes in the outside hole.

Figure 16. Upper Arm Assembly Cable Routing



136746_2_020

6. Connect the 4-cable connector to the circuit board. Make sure the low voltage cable with four small gauge wires goes around the divider.
7. Connect the rest of the cables to the circuit board.

NOTE:

The two-pin cable connectors are interchangeable and can go in either of the two-pin board connectors on that side of the board.

8. Install the lid (AE) on the brake box (AA) with the screw (AF) removed in step 2.
9. Route the brake box power conduit (large diameter) behind the main support structure up to the J-box and connect it to the appropriate section (normal or critical).
10. Route the electrical conduits from the upper arm to the J-box and attach them to the appropriate section (low voltage, normal or critical). Use the knockouts farthest from the wall.
11. Route the electrical conduits from the lower arm to the J-box, and attach them to the appropriate section (low voltage, normal or critical). **Route the cables behind the horizontal support** to prevent interference with installation of the covers later (note how the cables are routed in figure 17 on page 22).
12. Use wire ties to secure all conduits to the main support structure just below the J-box.

Test the Brake System

1. With no buttons activated, check to make sure both arms resist movement.
2. Squeeze the handle on the service head to activate the brake switch. You should hear an audible click, and all axes on that arm should move freely (main arm pivot, service head pivot, and telescoping if available).
3. Release the brake switch. The unit should resist movement.
4. Repeat this test for the other arm (if installed).

Test the AC Electrical System

Test the electrical system to make sure it complies with local and national codes.

Make the Gas Connections

NOTE:

The Latitude® Arm System is provided with DISS capping devices for use on the vacuum lines during installation, maintenance, and repair.



CAUTION:

Do not overtighten the fittings. Equipment damage could result.

1. Connect the air hose(s) from the upper arm to the air fitting(s) on the top side of the manifold (G) (see figure 4 on page 6). Snug the fitting(s) with a wrench.
2. Connect the vacuum hoses from the upper arm to the vacuum fittings on the top side of the manifold (G). Snug the fittings with a wrench. **Do not overtighten.**

NOTE:

On single fixed arm systems with more than four vacuum hoses, route the four shorter vacuum hoses to the top of the manifold and the remaining longer vacuum hose(s) to the bottom of the manifold.

3. Connect the oxygen hose(s) from the upper arm to the oxygen fitting(s) on the top of the manifold (G). Snug the fitting(s) with a wrench, but do not overtighten.
4. Repeat the steps above for the lower arm, routing the hoses to the bottom side of the manifold (G), if required.

Do a Test on the Unit

1. Do a pressure test on the medical gas and vacuum system to check for leaks according to the latest edition of the National Fire Protection Association (NFPA®¹) 99.

1. NFPA® is a registered trademark of National Fire Protection Association, Inc.

NOTE:

All positive pressure gas risers have internal check valves. All negative gas pressure risers do not have internal check valves, but are supplied with test caps attached.

2. If leaks are found, fix the problem, and repeat the test until no leaks are found.
3. Check the medical gas and vacuum system for flow and cross-connections according to the latest edition of the NFPA® 99.
4. If any problems are found with flow or cross-connections of the hoses, fix the problems, and test the hoses again until all problems are corrected.
5. For **Canadian** installations, do the testing required by the following standards:
 - CAN/CSA Z305.1, *Nonflammable Medical Gas Piping Systems*
 - CAN/CSA Z305.2, *Low-Pressure Connecting Assemblies for Medical Gas Systems*
6. For **Canadian** installations, commission the equipment in accordance with the latest editions of the following standards:
 - CSA Z318.5, *Commissioning of Electrical Equipment and Systems in Health Care Facilities*
 - CSA Z318.6, *Commissioning of Medical Gas Systems in Health Care Facilities*
 - CSA Z318.7, *Commissioning of Communication Systems in Health Care Facilities*

Level the Arm and Head Assembly



CAUTION:

The horizontal alignment is important for the Arm System to operate properly. Failure to correctly align the wall arm could result in equipment damage.

1. Level the arm as follows (see figure 18 on page 26):
 - a. Turn the arm to approximately a 45° angle (Position 1), but make sure you have access to the front adjusting screw.
 - b. Place a level lengthwise on top of the arm.
 - c. Loosen the jam nuts (AJ) as required.
 - d. Loosen the upper screw (AK) and tighten the lower screw to raise the corner of the casting. Do the opposite to the lower corner.
 - e. Turn the screws (AK) on opposite corners along the axis of the arm until the arm is as close to level as possible.

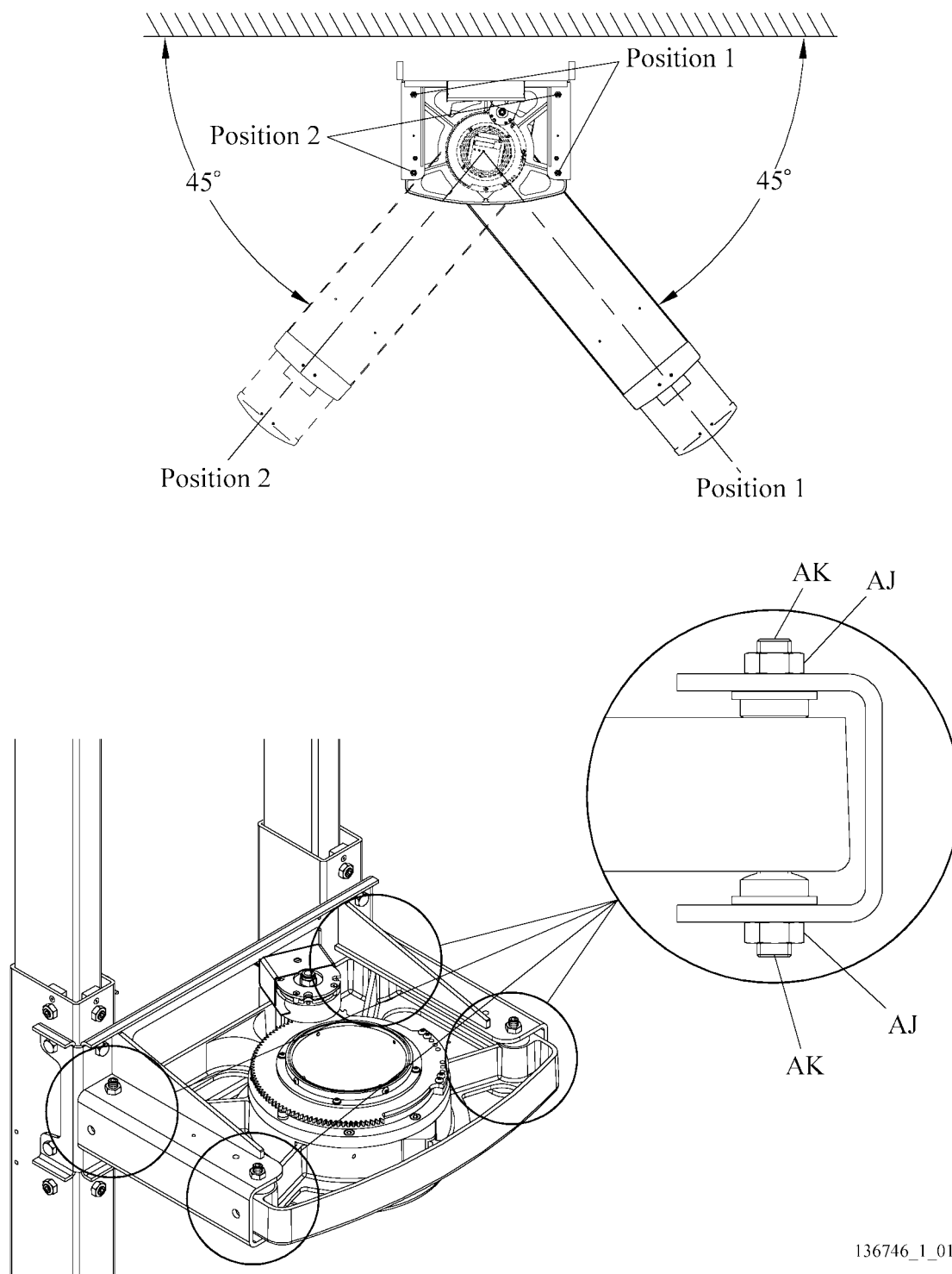


CAUTION:

After adjustment, make sure both adjusting screws are firmly seated. If not, equipment damage could result.

2. Make sure both screws (AK) are firmly seated.
3. Tighten the jam nuts (AJ). Make sure both are tight.
4. Swing the arm 90° so that it is approximately 45° from the wall on the other side of the unit (Position 2), and repeat the previous steps.
5. After everything is tight, check again that the arm is level in all directions, and all adjusting screws (AK) are firmly seated. Repeat the procedure if anything has shifted.

Figure 18. Leveling the Arm



136746_1_011

Adjust the Stops (if Required)

NOTE:

The stops are factory set for maximum 190° rotation. Moving a stop one hole equates to a 5° change in the rotational limit.

1. Remove the two screws (AL) that attach the stop (AM) (see figure 19 on page 27).
2. Move the stop (AM) to the desired position.

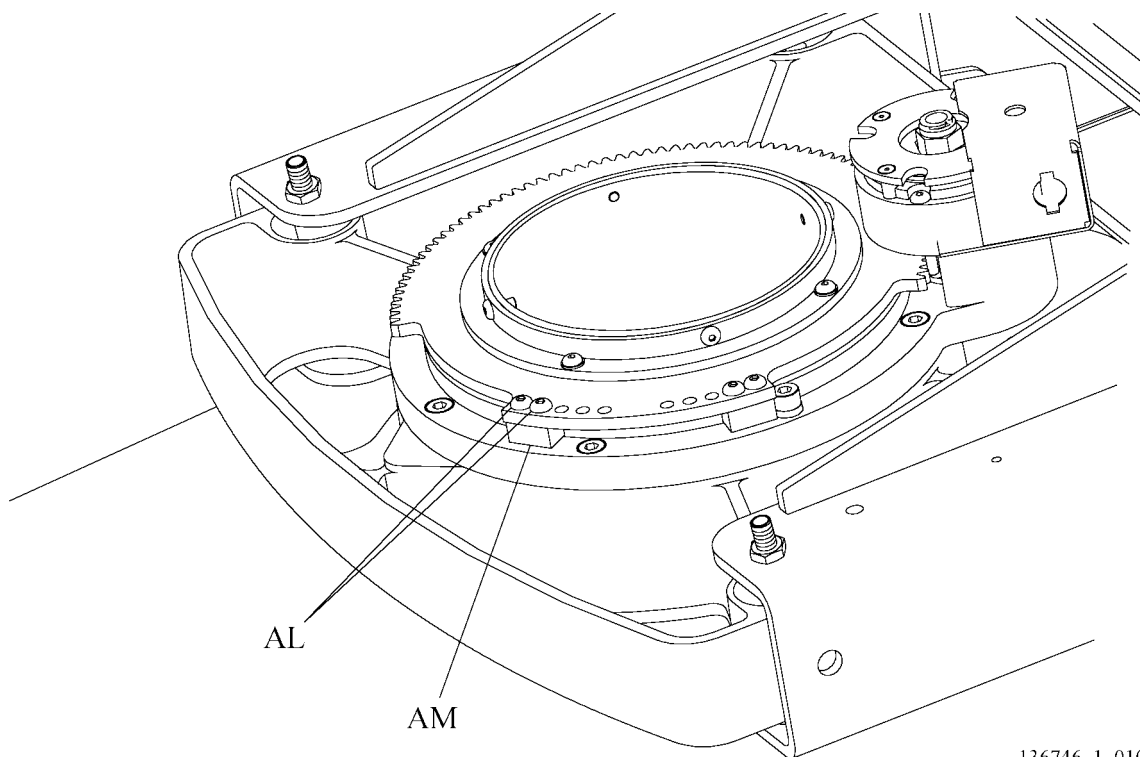


CAUTION:

Do not move the stop to a position where it is not secured with both screws. Equipment damage could result.

3. Tighten the two screws (AL) on the stop (AM).
4. Slowly move the service head toward the finished walls and make sure it does not contact the walls.

Figure 19. Stop Adjustment



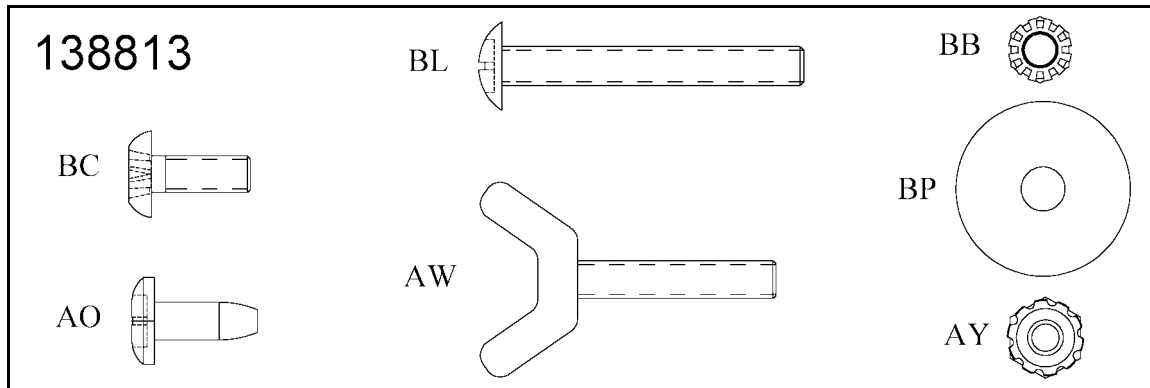
136746_1_010

Install the Outer Covers

NOTE:

Some covers will require trimming to fit.

Figure 20. Attaching Parts: Covers

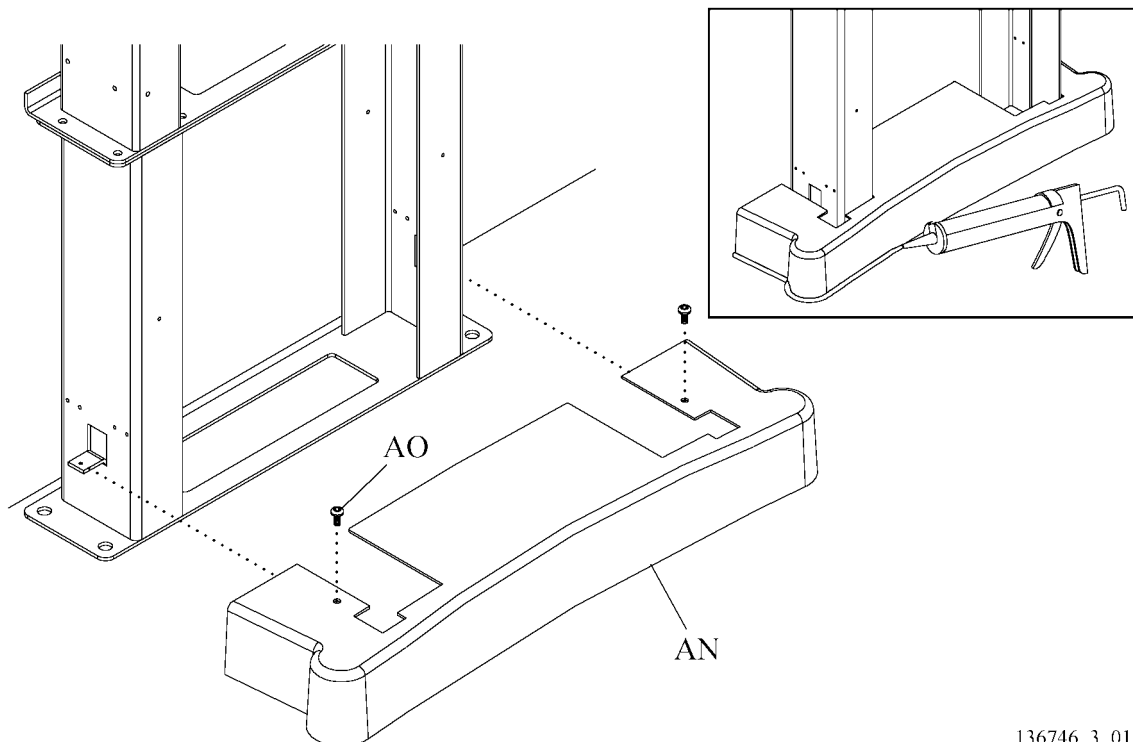


**Table 6. Covers Bag #138813
(located in box U-2 with upper arm)**

Item	Part Number	Qty	Description
BL	136640	2	Screw, 10–32 x 1½, type 1
AO	4388002	34	Screw, ¼–20 x 5/8, tap, pan, Torx
AW	137573	2	Wing screw, 10–32 x 1
BB	138210	4	KEPS nut, 10–24
AY	15250	4	KEPS locknut, 8–32, washer base
BC	51637	16	Screw, 10–32 x 39/64, FH PH
BP	3869	12	Washer, 17/64" ID x 1" OD, 16 ga.

1. Install the base cover (AN) with two screws (AO) (see figure 21 on page 29).
2. If necessary, caulk the base cover (AN) to the floor.
3. Install eight C-brackets (AP) with screws (AO) (see figure 22 on page 30).
4. Loosen the metal connectors (AQ) on the back of the upper front extrusions (AR), slide them down halfway, and retighten (see figure 23 on page 31).
5. Slide the connectors (AQ) into the slots on the lower front extrusions (AS), and tighten the screws on the back of the connectors so that the lower and upper extrusions are secured to one another.

Figure 21. Base Cover



136746_3_012

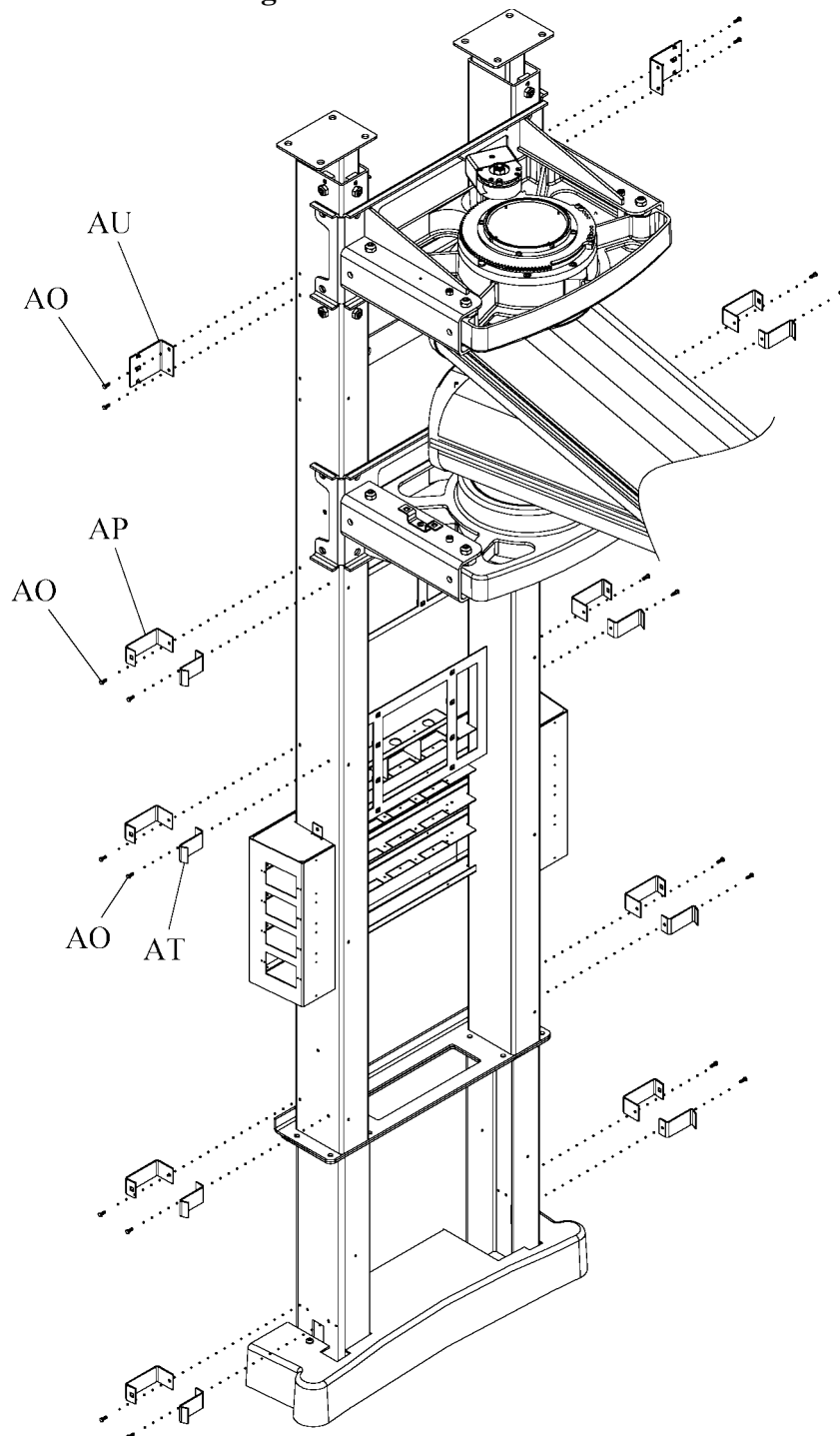
6. Use a power mitre box or hacksaw to cut the upper front extrusion (AR) to the length necessary to meet the ceiling:
 - a. For a drop ceiling, hold the extrusion in place and mark where it meets the ceiling.
 - b. For a solid ceiling, measure from floor to ceiling, subtract 4" for the base elevation, and cut the extrusion to that length.
7. Attach the right and left front extrusions (AS) with twelve screws (AO) and washers (BP). **Leave the screws slightly loose.**
8. Measure the width of the front panels (BD, BE - figure 24 on page 33), adjust the space between the front extrusions (AS) for the exact width of the front panels (approximately 23 5/8"); then tighten the screws (AO).
9. Install eight Z-brackets (AT) with screws (AO) directly across from the C-brackets (AP). The flat angle goes into the slot on the back of the front extrusions (AS) (see figure 22 on page 30).
10. Install the brackets (AU) for the upper side covers with screws (AO).

NOTE:

The brackets can be mounted in two locations, depending on ceiling height. Use the lower holes for ceilings 8' 5 15/16" and below; use the upper holes for taller ceilings.

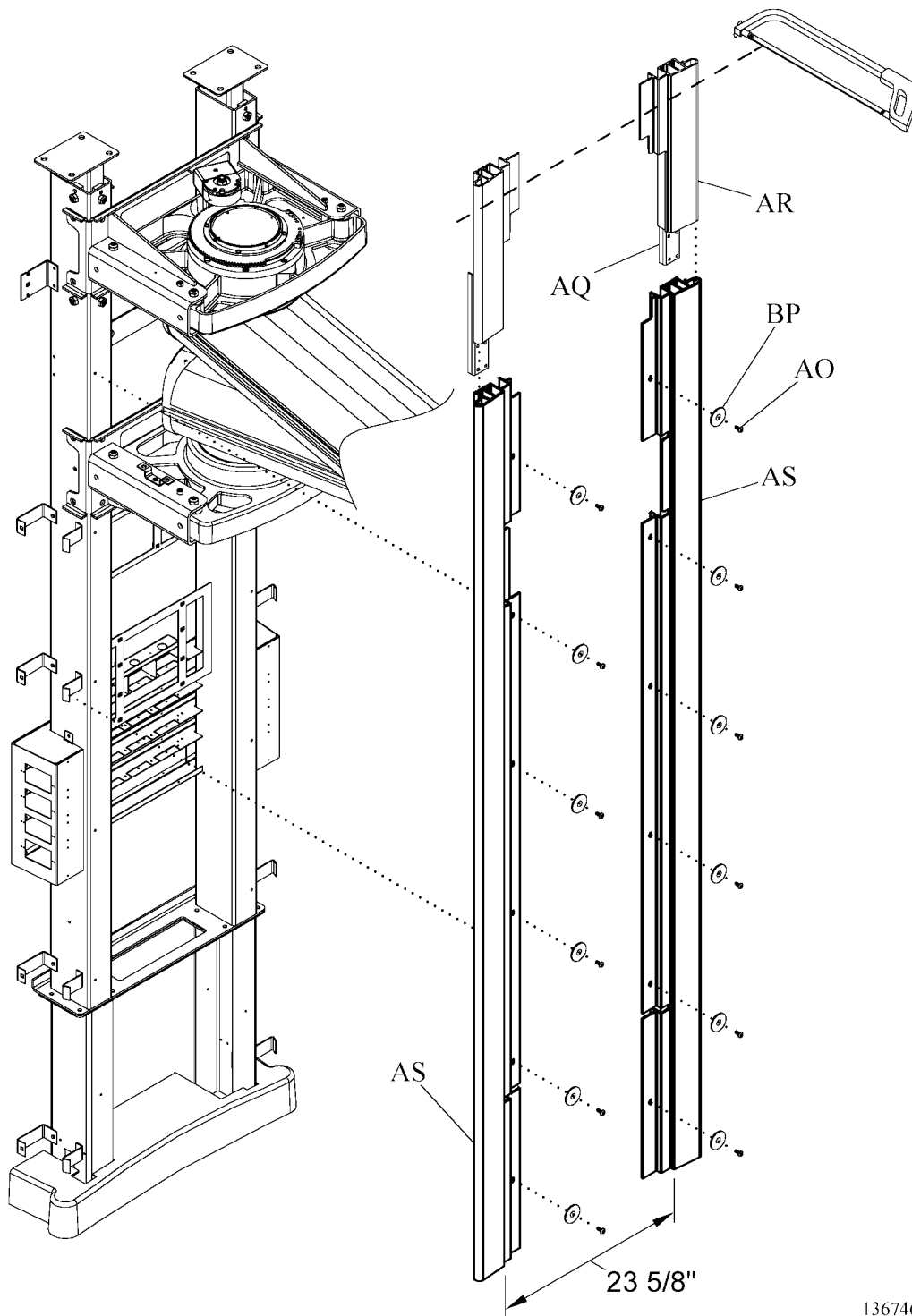
11. Attach the top side covers (AV) with wing screws (AW) (see figure 24 on page 33).
 - a. Fit the slots on the side covers (AV) over the tabs on the bracket (AU).
 - b. Slide up or down to adjust height: 3" below tall (8' 6" to 10') ceiling; ¼" below short (8' up to 8' 5 15/16") ceiling.

Figure 22. Front Extrusion Brackets



136746_1_013

Figure 23. Front Extrusions



136746_3_014

12. Use a KEPS nut (AY) to attach the ground wires (AX) to the lower ground stud (AH) on the inner left upright of the main support assembly (see figure 17 on page 22).

13. Hold the side panels (AZ) close, and feed the ground wires (AX) around the back of the main support structure (see figure 24 on page 33).
14. Attach the ground wires (AX) (short wire on the left, longer wire on the right) to the ground studs (BA) on the back of the side panels (AZ). Attach a nut (BB), then the ground wire (AX), then another nut (BB).



CAUTION:

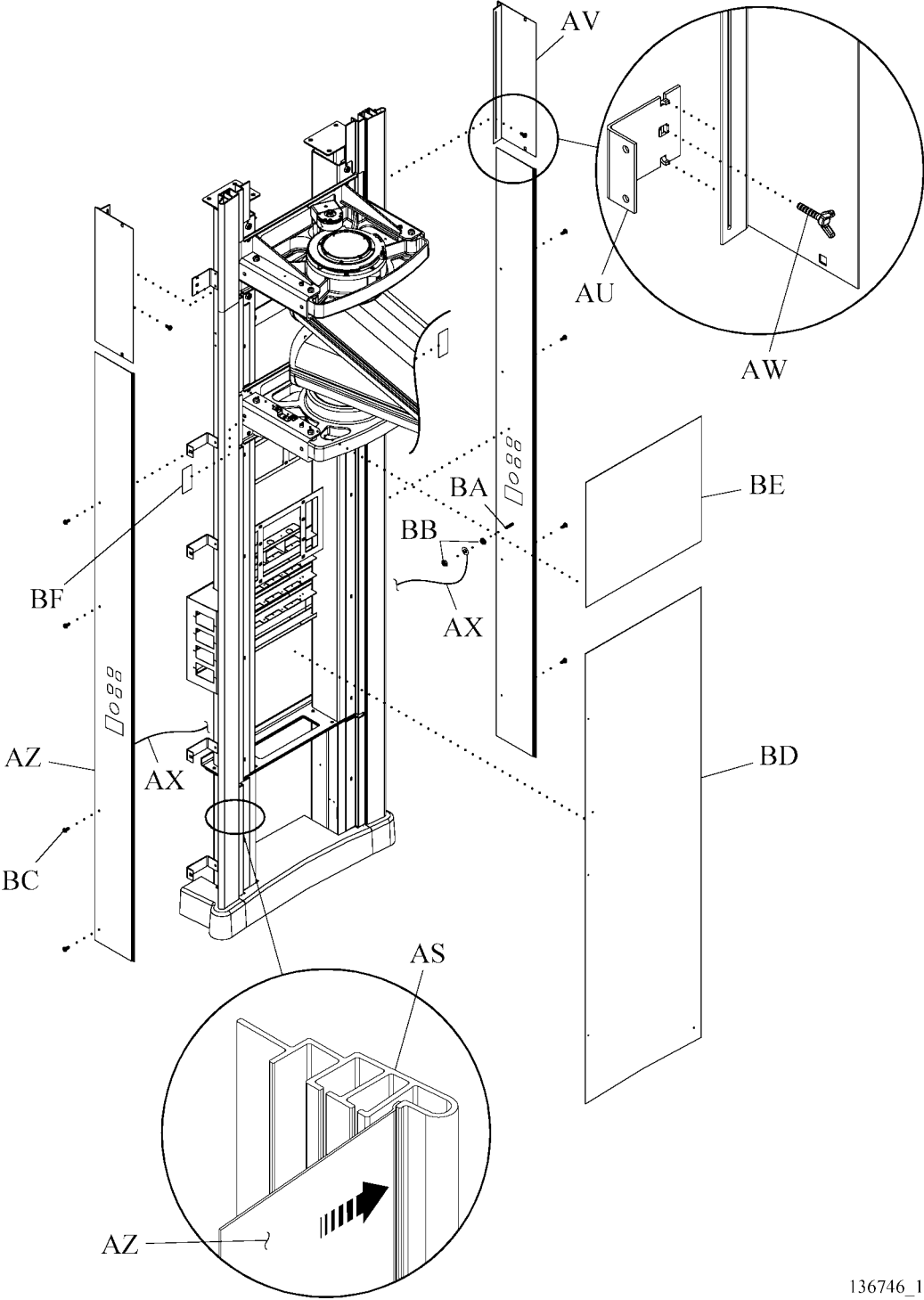
Make sure the receptacles on the wall services chassis are exactly aligned with the holes in the side panels before tightening the panels. If not aligned properly, equipment damage could result.

15. Install the side panels (AZ) into the slots on the back edge of the front extrusions (AS). See detail in figure 24 on page 33. Attach with screws (BC).
16. Attach the lower front panel (BD), curved edge down, with hook-and-loop fasteners.
17. Slide the smaller upper front panel (BE) behind the rear leveling bolts, and secure to the main support assembly with hook-and-loop fasteners.
18. Attach the small filler panels (BF) on each side of the head assemblies with hook-and-loop fasteners.
19. Install the top cover retaining brackets (BG) (see figure 25 on page 34).
20. Install the upper bearing cover (BH):
 - a. Measure the distance (xx) from the mounting bracket (BI) to the ceiling (see detail DL in figure 24). Make a note of that number.
 - b. Lay the upper bearing cover (BH) upside down, and measure from the inside raised mounting area (where the bracket attaches) up the inner wall of the cover.
 - c. Make a mark on the inside of the cover at the distance noted in step a.
 - d. Use a jigsaw or straight tin snips to shorten the upper bearing cover (BH).
 - e. With the arm pointing straight out, install the bearing cover (BH) with four screws (BC).
21. With the arm to the side, attach the gap filler (BJ) behind the bearing cover (BH) with hook-and-loop fasteners.
22. For taller ceiling heights (above 8' 5 15/16") attach the ceiling cover trim (BK) with screw (BL) on each side (see figure 26 on page 35).

NOTE:

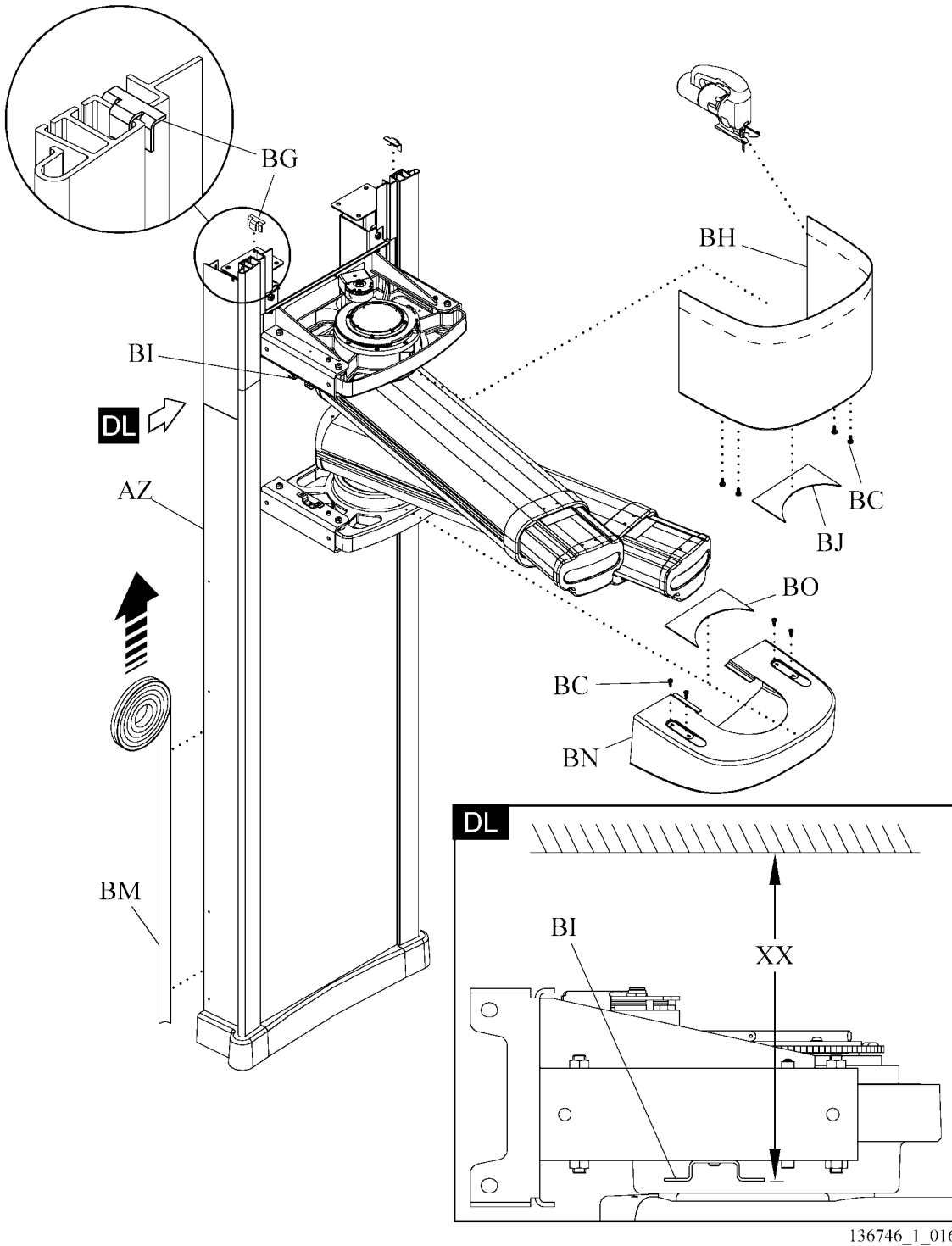
When you use ceiling trim BK, make sure the bearing cover BH is trimmed so that it does **not** contact the ceiling; otherwise, a gap may exist between BK and the ceiling.

Figure 24. Side and Front Covers



136746_1_015

Figure 25. Bearing Covers



136746_1_016

23. Use the alcohol wipes (included) to clean the upper outside edge of the bearing cover (BH), just below the ceiling cover trim (BK).

NOTE:

Make sure to clean the area where the moulding will be applied. If the surface is not clean, the moulding may stick initially, but will not be permanent.

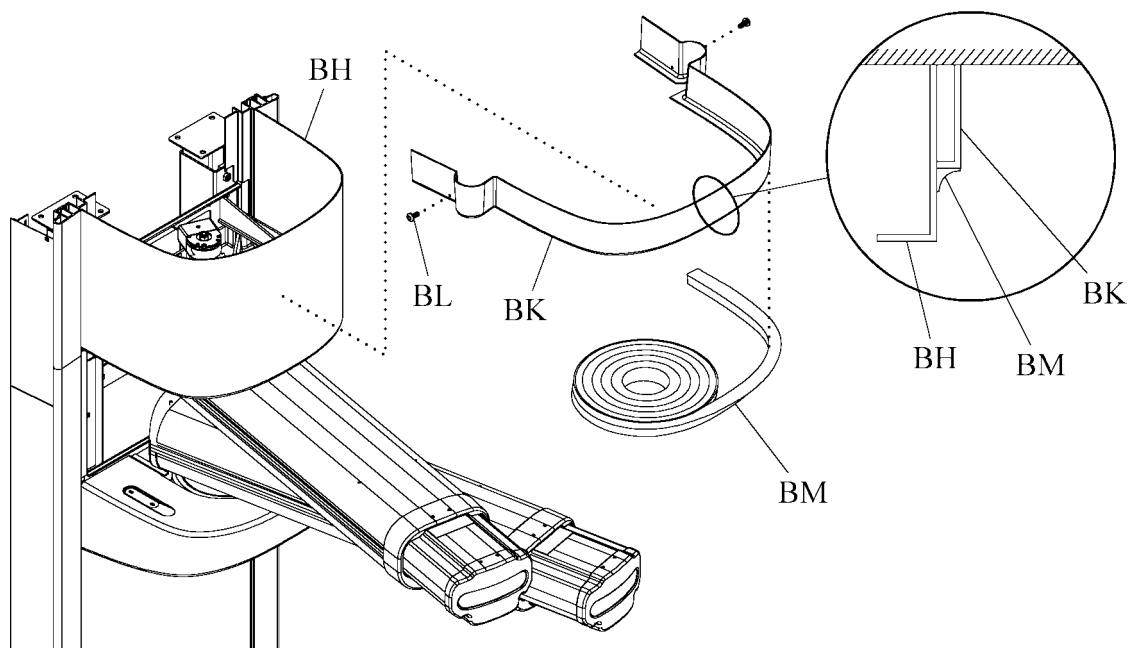
24. Cut to length, and add the stick-on moulding (BM) to hold the ceiling cover (BK) flush against the ceiling. **Apply the adhesive side to the bearing cover (BH).**
25. Install the lower bearing cover (BN) (if required) (see figure 25 on page 34):
 - a. With the arm pointing straight out, install the bearing cover (BN) with four screws (BC).
 - b. With the arm to the side, attach the gap filler (BO) behind the bearing cover (BN) with hook-and-loop fasteners.
26. Use the alcohol wipes (included) to clean the outside edge of the side panels (AZ), where the panels meet the wall (see figure 25 on page 34).

NOTE:

Make sure to clean the area where the moulding will be applied. If the surface is not clean, the moulding may stick initially, but will not be permanent.

27. Cut to length, and apply the stick-on moulding (BM) to where the side panels (AZ) meet the finished wall.

Figure 26. Ceiling Cover Trim



136746_1_017

Low Voltage Cable Pulling Instructions

For Fixed Length Arm, Wall Service Chassis, and Nurse Call Box

NOTE:

It is highly recommended to pull all cables through a conduit at the same time.

1. Remove the front cover of the J-box.
2. Remove the front plate at the device you wish to pull the cable to.
3. Locate the conduit you wish to pull the wire through.
4. At the J-box, attach the cable to the pull string provided in the conduit. Tie a loop in the pull string to make the attachment more secure. Also attach a second pull string if needed for future provisions.

NOTE:

If you pull more than one cable, stagger them so the ends are at least 6" apart.

5. Lubricate the end of the cable with wire pulling compound.
6. Push the cable into the conduit, lubricating it as it enters the conduit. Gently pull the string at the device end to take up the slack.

NOTE:

If you pull multiple cables, make sure they don't get twisted as they are fed into the conduit.

7. If the cable gets hung up, back it out a few inches and try again. If necessary, remove the end cap and jiggle the conduit while pulling the cable.
8. When the cable has been pulled completely through the conduit to its destination, tie the new pull string to the box.
9. After all electrical connections have been pulled, attach the covers to the rough-in box and device boxes.

For Telescoping Arm

NOTE:

Each conduit can accommodate two low voltage cables up to ¼" diameter. It is highly recommended to pull both cables at the same time.

1. Extend the telescoping arm to its full length.
2. Remove the front cover of the J-box.
3. Remove the front plate at the device you wish to pull the cable to.
4. Locate the conduit you wish to pull the wire through.

5. Detach the conduit from the J-box at one end and the device box at the other end.
6. At the J-box, attach the cable to the pull string provided in the conduit. Tie a loop in the pull string to make the attachment more secure. Also attach a second pull string if needed for future provisions.

NOTE:

If you pull more than one cable, stagger them so the ends are at least 6" apart.

7. Lubricate the end of the cable with wire pulling compound.
8. Push the cable into the conduit, lubricating it as it enters the conduit. Gently pull the string at the device end to take up the slack.

NOTE:

If you pull multiple cables, make sure they don't get twisted as they are fed into the conduit.

9. If the cable gets hung up, back it out a few inches and try again. Also try retracting the arm and then pulling the cable. If necessary, remove the end cap and jiggle the conduit while pulling the cable.
10. When the cable has been pulled completely through the conduit to its destination, tie the new pull string to the box.
11. Attach the conduit to the boxes at each end.
12. After all electrical connections have been pulled, attach the covers to the J-box and device boxes.

NOTES:
