

OWNERS MANUAL

SURFACE GUARD



ATG ACCESS



CONTENTS

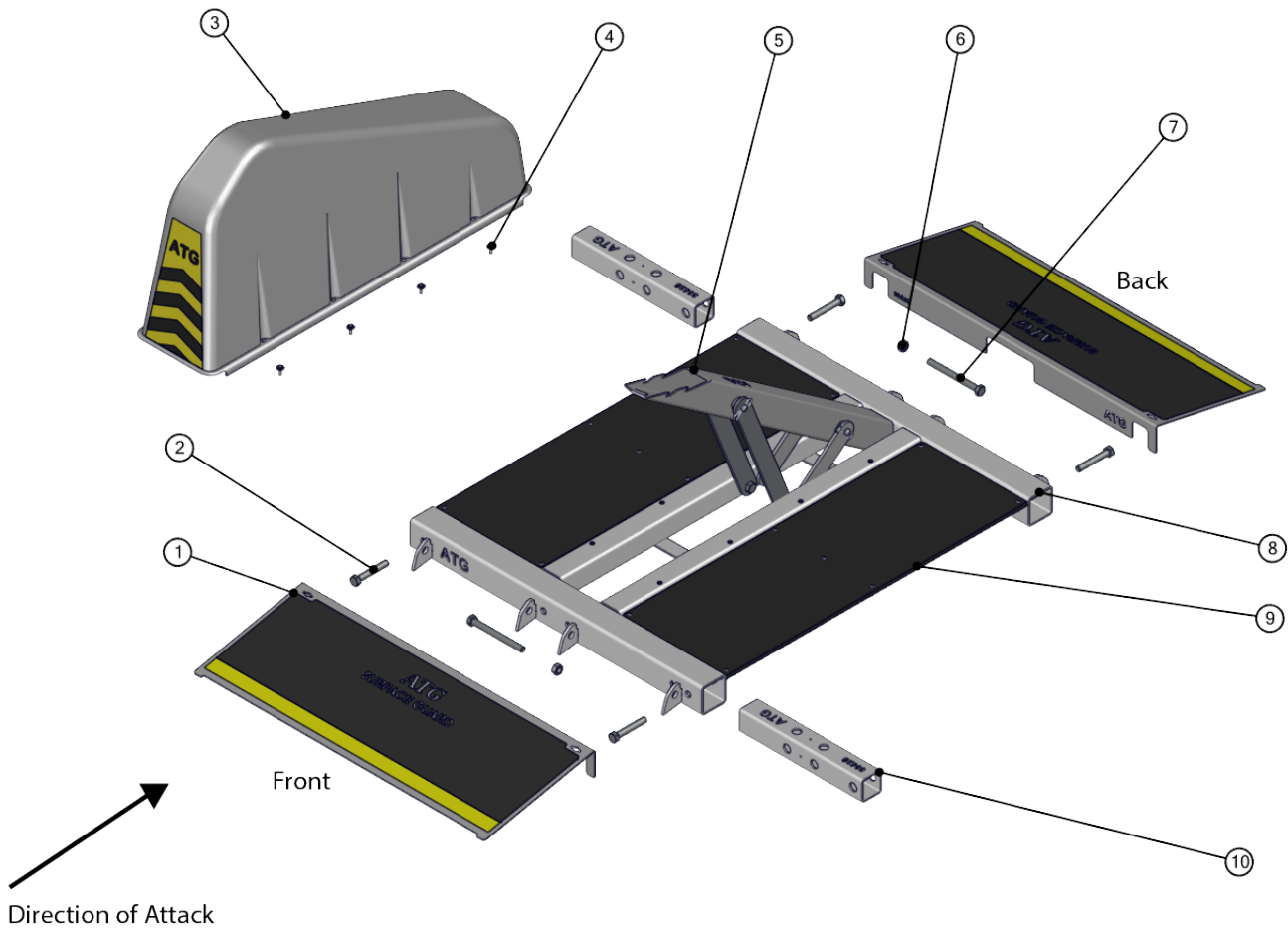
DESCRIPTION	3
PRODUCT OVERVIEW	3
MAJOR COMPONENTS	4
Center Frame	4
Left/Right Hand Frame.....	4
Emergency Vehicle Access Center Frame	4
Left/Right Emergency Vehicle Access Frame	4
In-Fill Frame.....	4
FITTING AND ANCHORING KITS	5
Curb/Wall Kit (P/N 33989)	5
Transition Plate Kit (P/N 34088).....	5
Transition Kit (P/N 33994).....	5
Energy Absorbing Strap Kits.....	5
ADDITIONAL FITTINGS	6
EVA Ramp Extension Plates (P/N 34398)	6
SPECIFICATION	7
MAJOR COMPONENTS	7
ADDITIONAL FITTINGS	10
DEPLOYMENT PLANNING	11
LOCATION PARAMETERS.....	11
FRAME REQUIREMENT	12
DEPLOYMENT	13
DEPLOYMENT PROCESS	13
PREPARE DEPLOYMENT	14
INSTALL ARRAY.....	14
TRANSITIONS	19
Transition array using Transition Assembly.....	19
Transition array using Transition Plate.....	21
DEVIATIONS	23
Deploy array around an obstacle	23
Stagger array using Curb/Wall Bar.....	24
Stagger array using Transition Plate.....	25
ANCHOR	26
Anchor array to nearby fixed object	26
EMERGENCY VEHICLE ACCESS	27
DISCONNECT AND STORE	28
MAINTENANCE	29
SPARES AND TOOLS	30
SPARES.....	30
TOOLS	30
WARRANTY, REPAIR CALLOUT, PART RETURN, DISPOSAL	31
COPYRIGHT	31

Version	Date	Changes
v4.1	3 Jun 2019	<p>Updates following NCR DAMASEC201900103.</p> <p>ADDED: Crow Bar added to 'Tools'.</p> <p>CHANGED: Corrected typo in 'Deployment Process'. 'Install Array' and 'Disconnect and Store' Manual Lift Cautions expanded to state that frames must not be dragged with the lifting handles. Cross-references in 'Install Array' step 7 corrected. Corrected typo in 'Install Array Around an Obstacle'.</p>
		<p>Author: M.Courtley</p> <p>Reviewer: R.Artes, D.Murphy</p> <p>Approver: A.Cunningham</p>

DESCRIPTION

PRODUCT OVERVIEW

The Surface Guard is a modular, pedestrian permeable security product designed to protect crowded places from vehicle attack. It consists of a smooth walkway with ramps and a retractable spike with removable cover. Its lightweight interconnecting modules can be stored within a small footprint, transported easily, and quickly manually deployed in combination to form an array that is laterally flexible over a range of surface cambers, is completely surface mounted, and requires no lifting equipment, civil works, or fixing. Three standard frame configurations are available to enable arrays to be tailored to any location whilst ensuring optimal spread of protection and pedestrian permeability. Arrays can be configured to allow emergency vehicle access through use of three optional reinforced frame configurations.



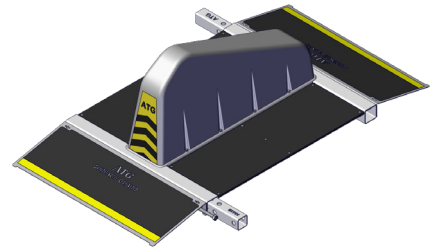
1. Ramp	6. M20 Nut
2. M20x120 Bolt	7. M20x200 Bolt
3. Cover	8. Center Frame
4. M8 Screw and Washer	9. Board Panel
5. Spike	10. Box Link

DESCRIPTION

MAJOR COMPONENTS

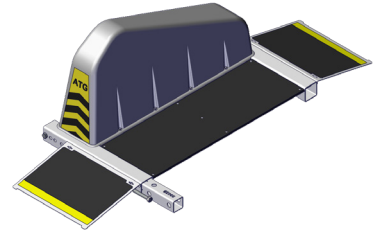
CENTER FRAME (P/N 33934)

The Center Frame is installed across the span of an array. It consists of a centrally mounted Spike, Cover, two full length Board panel walkways, two full-width Ramps, two Box Links stowed in the Frame, and the required fasteners.



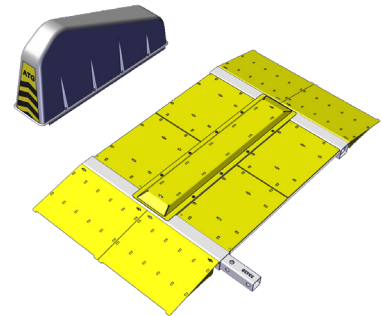
LEFT/RIGHT HAND FRAME (P/N 33936/33937)

Left/Right Hand Frames are installed at each end of array or span, and adjacent both sides of a transition or deviation. They consist of a Spike mounted on the 'handed' side (when viewed from direction of attack), Cover, one full length Board panel walkway, two half-width Ramps, two Box Links stowed in the Frame, and the required fasteners.



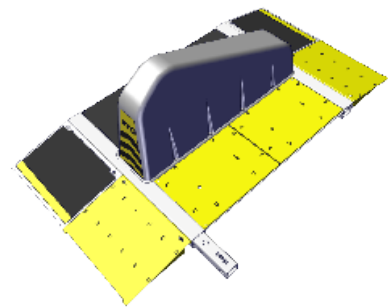
EMERGENCY VEHICLE ACCESS CENTER FRAME (P/N 34135)

At least two Emergency Vehicle Access Center Frames are installed in place of a standard Center Frames where access for emergency services vehicles is required. It is a modified Center Frame, consisting of a centrally mounted Spike, standard Cover, metal Cover for a lowered Spike, four half-length reinforced walkway panels, four half-width reinforced Ramps, two Box Links stowed in the Frame, and the required fasteners.



LEFT/RIGHT EMERGENCY VEHICLE ACCESS FRAME (P/N 34142/34144)

Left/Right Emergency Vehicle Access Frames are installed at each end of Emergency Vehicle Access Center Frames, in place of standard Center Frames where access for emergency services vehicles is required. It is a modified Center Frame, consisting of a centrally mounted Spike, two half-length reinforced walkway panels, one full length Board panel walkway, two half-width reinforced Ramps, two half-width standard Ramps, two Box Links stowed in the Frame, and the required fasteners.



IN-FILL FRAME (P/N 34543)

In-Fill Frames are installed in the array span to fit the array to a location whilst maintaining Spike spacing. It consists of a centrally mounted Spike, two double-length Box Links stowed in the Frame, and the required fasteners.



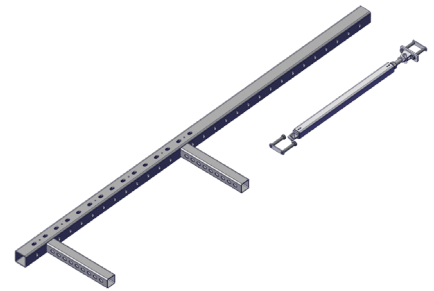
DESCRIPTION

FITTING AND ANCHORING KITS

CURB/WALL KIT (P/N 33989)

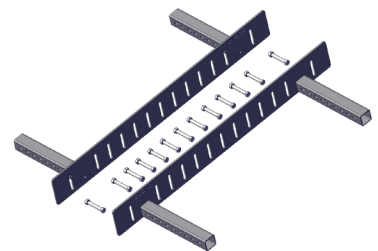
The Curb/Wall kit is installed into Frames at each end of a span to secure the array against a fixed surface. It includes the Curb/Wall Assembly, the Brace, and required fasteners.

- **CURB/WALL ASSEMBLY:** The Curb/Wall Assembly is a welded box-section which can be installed into a Frame to fit and wedge an array against a vertical surface, such as a curb or wall. It can be horizontally adjusted to fit the array to the location.
- **BRACE:** The Brace is an extendible threaded assembly that is connected to a Frame and Curb/Wall Assembly to provide lateral strength to an array. Clevis eyes at each end are installed onto the Frame and Curb/Wall Assembly at an angle of at least 30 degrees. The threaded assembly is adjusted to fit and secured in place with a pin and clip.



TRANSITION PLATE KIT (P/N 34088)

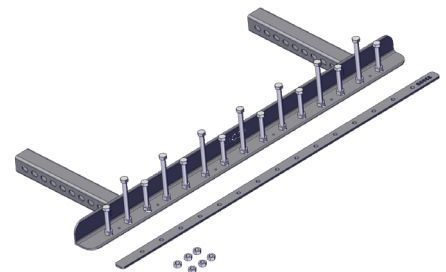
The Transition Plate Kit is installed into a Frame to transition an array over a low curb (i.e. a central reservation), and can also be used to insert a small stagger into the array. It includes two Transition Plates and the required fasteners. Each Transition Plate has 13 cut slots and two welded box-sections.



TRANSITION KIT (P/N 33994)

The Transition Kit is installed into a Frame to transition an array over a curb/vertical surface (larger than the Transition Plate Kit can accommodate). It includes the Transition Assembly, the Curb Bolt Plate, and the fasteners required.

- **TRANSITION ASSEMBLY:** The Transition Plate Assembly is an L-shaped plate with two welded box-sections. It can be horizontally adjusted to fit the array to the location, and it can be installed either with the slotted L-plate faced up or down depending on the height of vertical transition at the location.
- **CURB BOLT PLATE:** The Curb Bolt Plate is a bar of threaded sockets. It is inserted into the Curb/Wall Assembly, enabling fasteners to be connected through the Transition Assembly and Curb/Wall Assembly.



ENERGY ABSORBING STRAP KITS

The Energy Absorbing Strap Kit enables the array to be anchored to fixed objects within distance of the strap used. Three kits are available consisting of different lengths of strap and the associated fittings and shackles to install.

- 2 meter Strap (6ft) (P/N 35167) for anchoring out to 1 meter (3ft).
- 3 meter Strap (10ft) (P/N 35168) for anchoring out to 1.5 meters (5ft).
- 4 meter Strap (13ft) (P/N 35169) for anchoring out to 2 meters (6.½ ft).

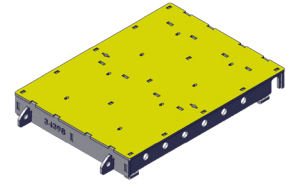


DESCRIPTION

ADDITIONAL FITTINGS

EVA RAMP EXTENSION PLATES (P/N 34398)

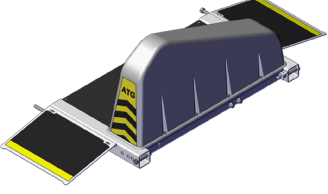
The Emergency Vehicle Access Ramp Extension Plate provides extended raised length for short wheel base/low clearance vehicles. At 800mm long, Extension Plates are attached to the front and rear of a Frame, enabling a total extension of 1600mm. Each plate is half-width size for installation flexibility, as such Emergency Vehicle Access Center Frames require four Extension Plates (two front, two rear), where Left/Right Emergency Vehicle Access Frames require two (one front, one rear).



SPECIFICATION

MAJOR COMPONENTS

All imperial conversions rounded up to nearest 1/8-in or whole lb.

			
Part Number	33936	33934	33937
Type	Left Hand Frame	Center Frame	Right Hand Frame
IWA-14 Security Rating	2500kg [5,500 lbs] @ 30mph [48 kph] / 7200kg [15,000 lbs] @ 20mph [32 kph]		
Patent	GB10706964.2 (Pending)		
Standard Deployment Dimensions (mm [in])	2325(L) x 790(W) x 710(H) [91.5(L) x 31.1(W) x 28(H)]	2325(L) x 1185(W) x 710(H) [91.5(L) x 46.7(W) x 28(H)]	2325(L) x 790(W) x 710(H) [91.5(L) x 31.1(W) x 28(H)]
Ramps Supplied	Half Ramp x2	Full Ramp x2 <i>see RAMPS for Specification</i>	Half Ramp x2
Clear Opening Width (mm [in])	450 (Right) [17.7 (Right)]	450 (Left) + 450 (Right) [17.7 (Left) x 17.7 (Right)]	450 (Left) [17.7 (Left)]
Deployed Weight	135 kg [298 lbs]	175 kg [386 lbs]	135 kg [298 lbs]

FRAME

Dimensions (mm [in])	1425(L) x 790(W) x 100(H) [56.1(L) x 31.1(W) x 4(H)]	1425(L) x 1185(W) x 100(H) [56.1(L) x 46.7(W) x 4(H)]	1425(L) x 790(W) x 100(H) [56.1(L) x 31.1(W) x 4(H)]
Lifting Weight	110 kg [243 lbs]	125 kg [276 lbs]	110 kg [243 lbs]
Material	Mild Steel Frame w/ Phenolic Board walkway		

COVER

Cover Dimensions (mm [in])	1332(L) x 285(W) x 610(maxH) [52.1(L) x 11.4(W) x 24.1(maxH)]
Cover Weight	8.5 kg [19 lbs]
Material	Marlex 50100 High Density Polyethylene

SPECIFICATION

MAJOR COMPONENTS

All imperial conversions rounded up to nearest 1/8-in or whole lb.

			
Part Number	34142	34135	34144
Type	Emergency Vehicle Access Left Hand Frame	Emergency Vehicle Access Center Frame	Emergency Vehicle Access Right Hand Frame
IWA-14 Security Rating	2500kg [5,500 lbs] @ 30mph [48 kph] / 7200kg [15,000 lbs] @ 20mph [32 kph]		
Patent	GB10706964.2 (Pending)		
Deployed Dimensions (mm [in])	2325(L) x 1185(W) x 710(maxH)/131(minH) [91.5(L) x 46.3(W) x 28(maxH)/5.2(minH)]		
Ramps Supplied	Half Ramp x2 + EVA Ramp x2	EVA Ramp x4 <i>see RAMPS for Specification</i>	Half Ramp x2 + EVA Ramp x2
Clear Opening Width (mm [in])	450(Left) + 450 (Right) [17.3(Left) x 17.3(Right)]		
Deployed Weight	270 kg [596 lbs]	340 kg [750 lbs]	270 kg [596 lbs]

FRAME

Frame Dimensions (mm [in])	1425(L) x 1185(W) x 100(H) [56.1(L) x 46.3(W) x 4(H)]		
Frame Lifting Weight	115 kg [276 lbs]		
EVA Plate Weight	35 kg [78 lbs] each (x2 used)	35 kg [78 lbs] each (x4 used)	35kg [78 lbs] each (x2 used)
Material	Mild Steel Frame and EVA Plate w/ Phenolic Board walkway		

COVER

Cover Dimensions (mm [in])	1332(L) x 285(W) x 610(H) [52.1(L) x 11.3(W) x 24.1(H)]		
Cover Weight	8.5 kg [19 lbs]		
Cover Material	Marlex 50100 High Density Polyethylene		

EVA COVER

EVA Cover Dimensions (mm [in])	1394(L) x 310(W) x 31(H) [55(L) x 12.3(W) x 1.3(H)]		
EVA Cover Weight	37 kg [82 lbs]		
EVA Cover Material	Mild Steel		

SPECIFICATION

FITTING AND ANCHORING

All imperial conversions rounded up to nearest 1/8-in or whole lb.



Part Number	34543
Type	In-Fill Frame
IWA-14 Security Rating	2500kg [5,500 lbs] @ 30mph [48 kph] / 7200kg [15,000 lbs] @ 20mph [32 kph]
Patent	GB10706964.2 (Pending)
Deployed Dimensions (mm [in])	1425(L) x 396(W) x 710(H) [56.½(L) x 15.½(W) x 28(H)]
Ramps Supplied	N/A
Clear Opening Width (mm [in])	N/A
Deployed Weight	106 kg [234 lbs]

FRAME

Frame Dimensions (mm [in])	1425(L) x 396(W) x 100(H) [56.½(L) x 15.½(W) x 4(H)]
Frame Lifting Weight	97 kg [214 lbs]
Material	Mild Steel

COVER


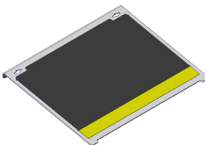
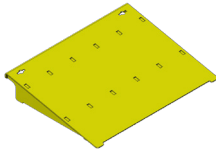
Cover Dimensions (mm [in])	1332(L) x 285(W) x 610(maxH) [52.½(L) x 11.¼(W) x 24.¼(maxH)]
Cover Weight	8.5 kg [19 lbs]
Cover Material	Marlex 50100 High Density Polyethylene

SPECIFICATION

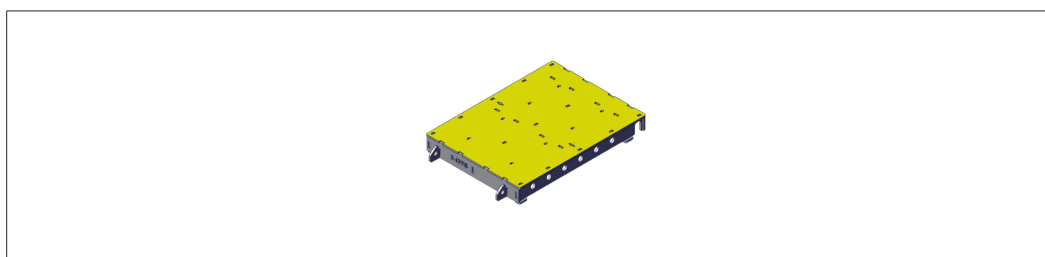
ADDITIONAL FITTINGS

All imperial conversions rounded up to nearest 1/8-in or whole lb.

RAMPS

			
Part Number	part of Center Frame	part of all Frames (excl Center Frames)	part of all EVA Frames
Type	Full-width Ramp	Half-width Ramp	Emergency Vehicle Access Ramp
Dimensions (mm [in])	450(L) x 1183(W) [17.7(L) x 46.6(W)]	450(L) x 592 (W) [17.7(L) x 23.3(W)]	
Weight	19 kg [42 lbs]	10 kg [23 lbs]	20 kg [46 lbs]
Slope	1:4 (12°)		

EVA EXTENSION PLATE



Part Number	34398
Dimensions (mm [in])	800(L) x 591(W) x 100(H) [31.5(L) x 23.3(W) x 4(H)]
Weight	63 kg [140 lbs] each (x4 used EVA Center Frame, x2 used EVA L/R Handed Frame)
Material	Mild Steel

DEPLOYMENT PLANNING

LOCATION PARAMETERS

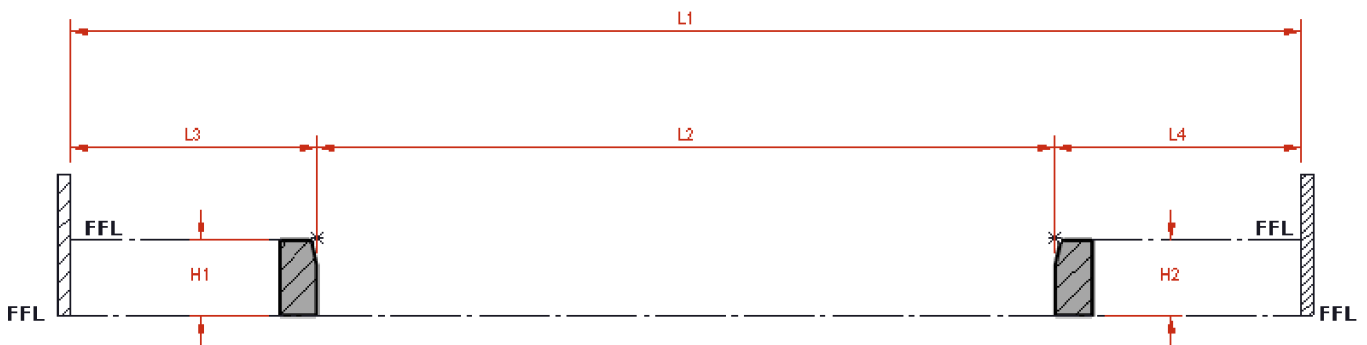
Fitting + Anchoring surfaces

Confirm the location has suitable surfaces to install the array - curbs, walls, buildings, and recessed walls are possible fitting surfaces. Street furniture and trees within 2 meters (6ft 6.¾-in) of the array are suitable anchoring points. The array must be fitted to the location at both ends and must not be used 'free standing'.

Array length

Measure dimensions of the location the array is to protect. This will help determine the quantity of units and types.

In the typical example below, the dimensions measured are total array length (L1), road width (L2), pavement/sidewalk width (L3/L4 - two measurements as they may differ), and pavement/sidewalk height (H1/H2 - two measurements as they may differ).



Obstacles

Obstacles less than 1200mm (47.¾-in) front-to-back length can be integrated without deviating the array. Larger obstacles require the array to be staggered, or an alternative location.

DEPLOYMENT PLANNING

FRAME REQUIREMENT

Define the Quantity and Type of Frames and Kits required for the array using the following guidelines:

- A **Curb/Wall Kit** must be fitted against a suitable curb, wall, or recess at both ends of a span.
 - Curb/Wall Kits may not be required on a Pavement/Sidewalk span where: (1) A Road span is installed, and secured between two curbs with Curb/Wall kits. (2) The Pavement/Sidewalk span is less than four frames.
- **L/R Handed Frames** must be placed on both ends of a span, and adjacent to both sides of all transitions and deviations.
- **Center Frames** are to make up the length of a span, maintaining a minimum walkway width of two walkway panels between Spikes in all permeable zones. Center Frames must not be used at the ends of a span.
- All transitions/deviations must be isolated from pedestrians with Barriers/Sandbags/Cones.

Optional Equipment Span Requirements:

- Use **In-Fill Frames** to adjust the span to fit where other frame types are too large.
- **Emergency Vehicle Access Frames** can be used in place of Center Frames where vehicular access is anticipated. The recommended minimum access width of 3.2 meters (10.½ ft) consisting of x1 EVA Left Hand Frame, x2 EVA Center Frames, and x1 EVA Right Hand Frame. Additional EVA Center Frames can be used where larger access points are required.

NOTE

EVA Frames are intended to enable access for emergency services only. They are not intended for general traffic access, goods deliveries, etc.

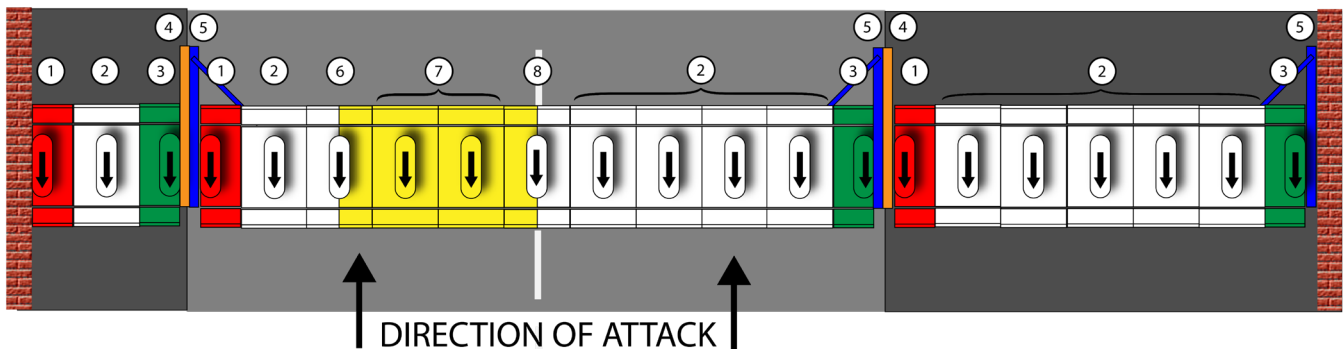
- **Energy Absorbent Strap Kits** can be used where fixed street furniture or trees are located within 2 meters (6ft 6.¾-in) of the array.

CAUTION

Frames in the array must be fit to the location. Under no circumstances should a frame or ramp span an elevation and present a trip hazard.

- Array Length can be adjusted on the Curb/Wall Assembly in 55mm (2.¼-in) increments.

Example:

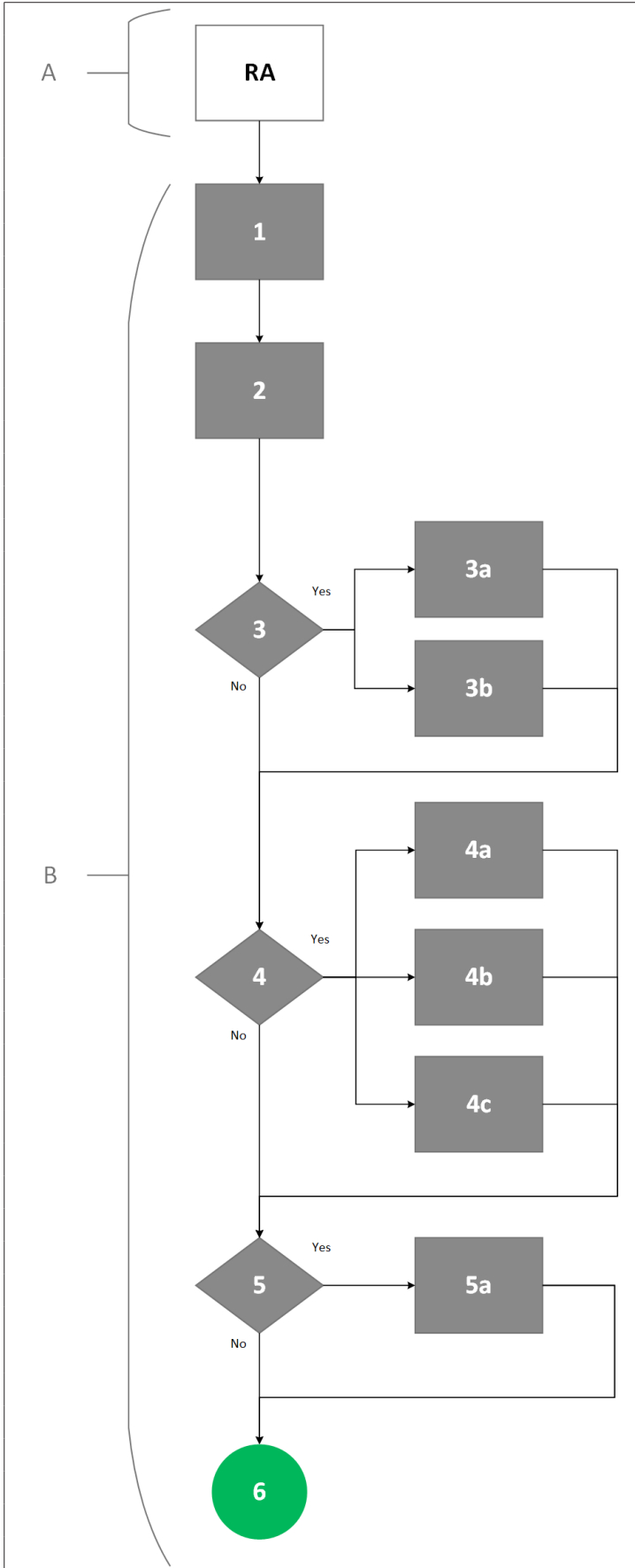


- | | |
|---------------------|-------------------------|
| 1. Left Hand Frame | 5. Curb/Wall Kit |
| 2. Center Frame | 6. EVA Left Hand Frame |
| 3. Right Hand Frame | 7. EVA Center Frame |
| 4. Transition Kit | 8. EVA Right Hand Frame |

Notice the Curb/Wall Kit is not used on one end because the pavement/sidewalk span is less than four Frames. In the event of impact, the force would be absorbed by cantilever. The other end of the array has seven frames, so a Curb/Wall Assembly is used to ensure that an impact would be properly absorbed.

DEPLOYMENT

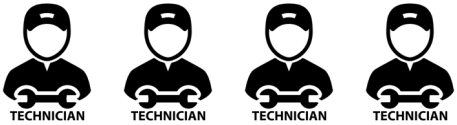

DEPLOYMENT PROCESS



A		Pre Deployment
RA		Perform Full Risk Assessment for intended use, including Emergency Vehicle Access (where required).
B		Deployment at location
1		Prepare Deployment
2		Install array
3		Vertical surface(s) present in array span?
3a		Transition array using Transition Assembly
3b		Transition array using Transition Plate
4		Obstacle(s) present in array span?
4a		Deploy array around an obstacle
4b		Stagger array using Curb/Wall Bar
4c		Stagger array using Transition Plate
5		Fixed objects nearby?
5a		Anchor array to nearby fixed object
6		Deployment Complete

DEPLOYMENT

PREPARE DEPLOYMENT

Minimum Personnel	PPE
 <p>TECHNICIAN TECHNICIAN TECHNICIAN TECHNICIAN</p>	
DANGER	CRUSH: Potential for trapped limbs causing serious injury. NEVER place any object under a raised Spike and always secure the Spike by the Front Arm first.
CAUTION	MANUAL LIFT: Manual lifting of heavy parts with potential for injury or damage. <ul style="list-style-type: none"> • Perform 4-man lifts on Frames, using the correct Lifting Handles. • Ensure the hooks of Lifting Handles face the direction of travel. • Never use Lifting Handles to drag Frames.
CAUTION	DROP: Potential for dropping heavy parts causing minor injury.
CAUTION	IMPACT: Do not raise Spikes until the array is complete. Raised uncovered Spikes have potential to cause injury.

1. Review the deployment plan confirming placement/configuration, quantities, obstructions, and work limitations.

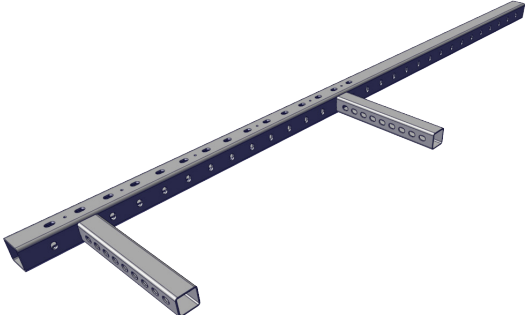
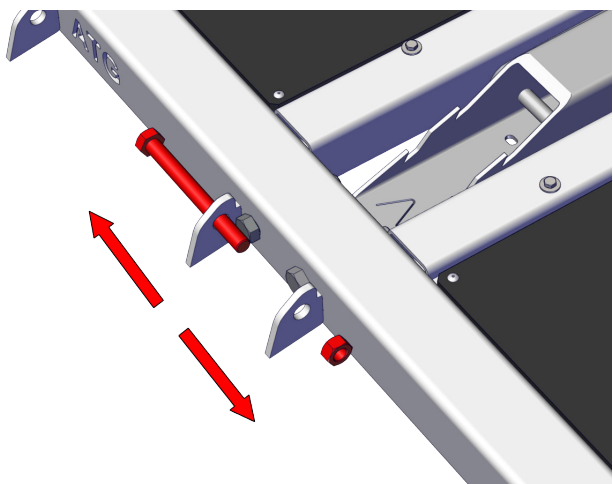
NOTE Always install the array from left to right (facing the Spikes/from the direction of attack).

2. Review the Health and Safety risks and any associated documentation. Manage all risks and hazards in the local area.

CAUTION **IMPACT:** Do not raise Spikes until the array is complete. Raised uncovered Spikes have potential to cause injury.

3. Set-up appropriate fencing/barriers to isolate the work area from the public. Arrange for traffic diversions as required.

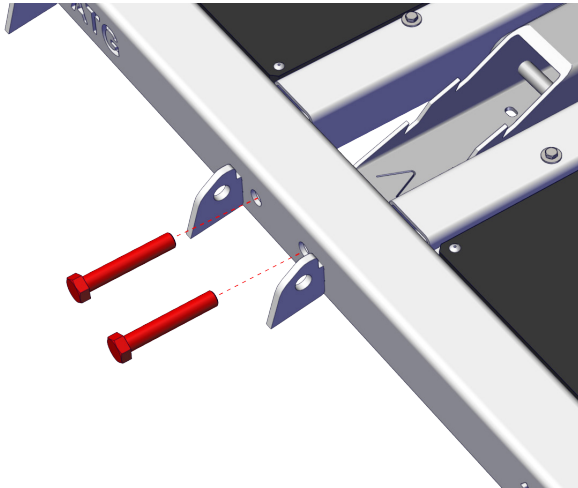
INSTALL ARRAY

Step 1	Step 2
	
<p>Start an array by placing a Curb/Wall Assembly at the left hand (from direction of attack) end fixed surface. Ensure the extended length of the assembly faces away from the direction of attack.</p> <p>NOTE If either end point is against a delicate surface (i.e. finished/decorated surface, glass frontage etc), place sandbags or other soft interface between the assembly and surface.</p>	<p>Remove the M20 Nut and M20x200 Bolt from each side of a Frame.</p>

DEPLOYMENT

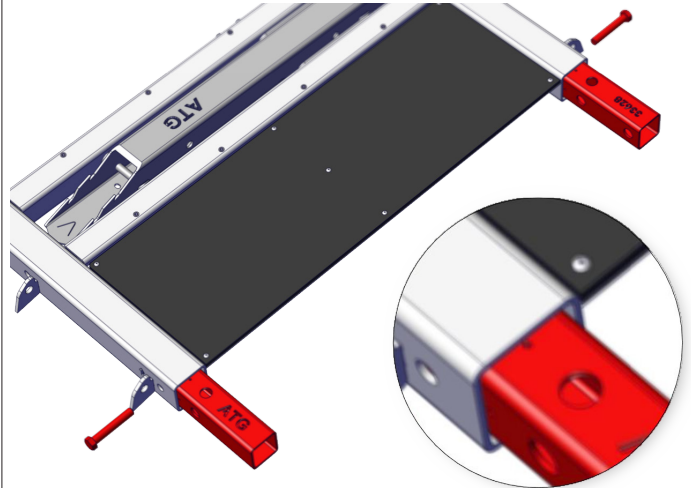
INSTALL ARRAY

Step 3



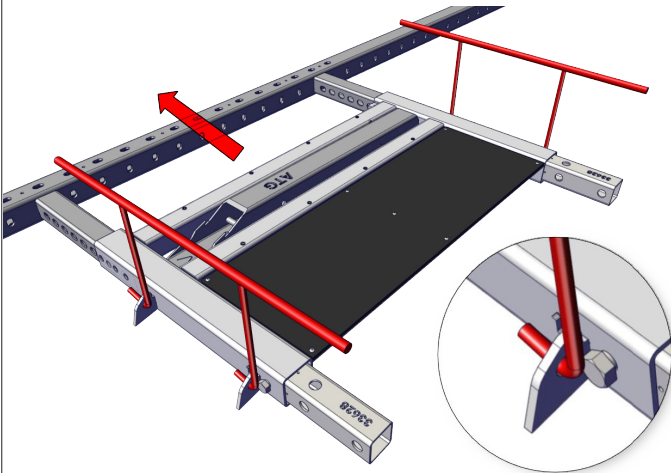
Remove the M20x120 Bolt from each side of the Frame.

Step 4



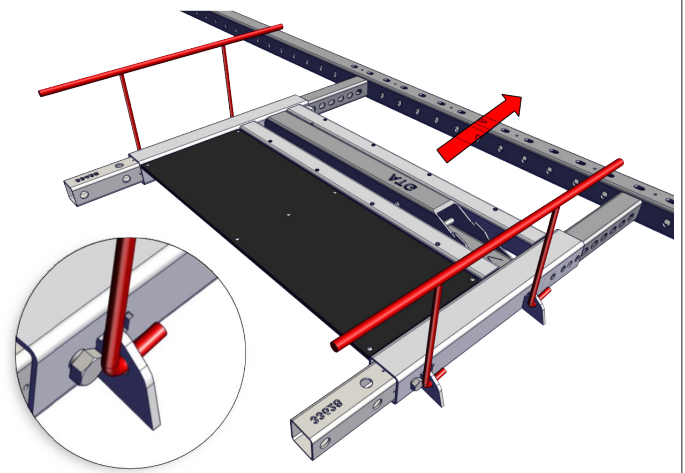
Extend both Box Links from the right-hand side of each Frame (front and rear). Check the small hole on top of the Box Link is visible and reinstall two M20x120 Bolt.

Step 5



Fit a Left-Hand Frame to the Curb/Wall Assembly by performing a four-man lift with the Lift Handles through the Bolt Spike eyes.

Step 6



Repeat steps 1 > 5 to place the Right-Hand Frame and Curb/Wall Assembly on the other end fixed surface.

CAUTION

MANUAL LIFT: Manual lift of heavy parts with potential for injury or damage.

- Perform 4-man lifts on Frames, using the correct Lifting Handles.
- Ensure the hooks of Lifting Handles face the direction of travel.
- Never use Lifting Handles to drag Frames.

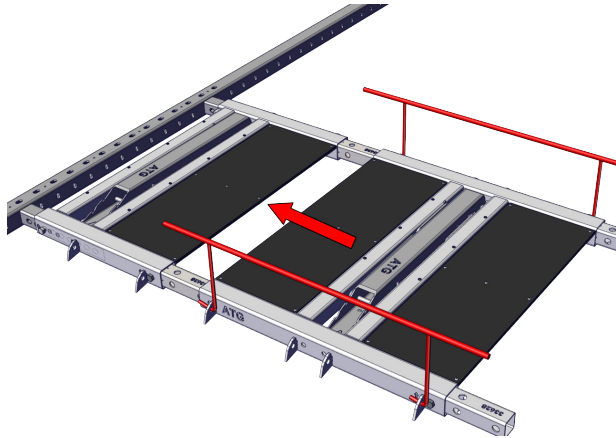
NOTE

Do not install any Bolts. The array will be adjusted once all Frames are in place.

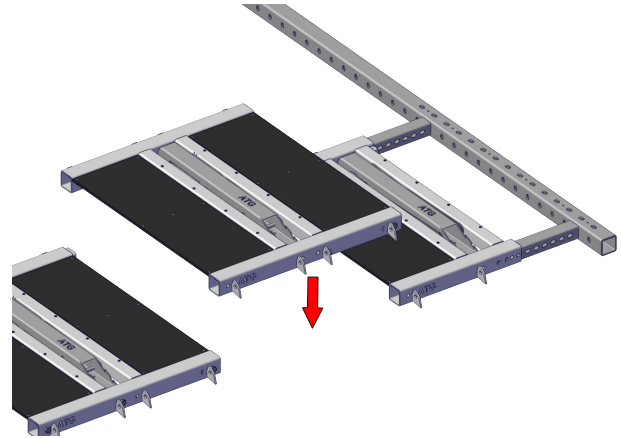
DEPLOYMENT

INSTALL ARRAY

Step 7



Step 8

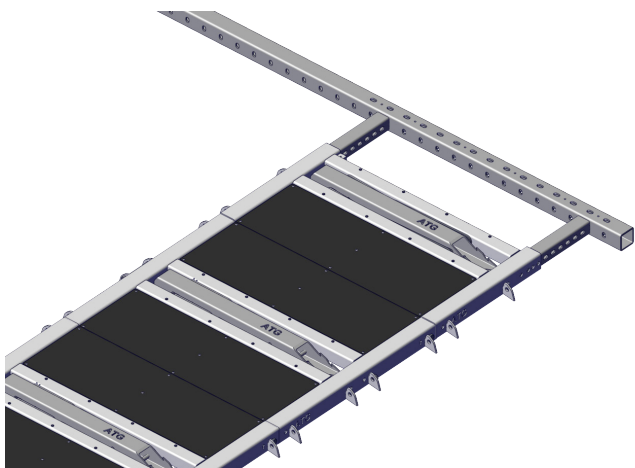


Fit Center Frames to the array by repeating steps 2 > 4 and performing four-man lifts with the Lift Handles through the Bolt Spike eyes. Refer to 'Transitions' and 'Deviations' where obstacles exist.

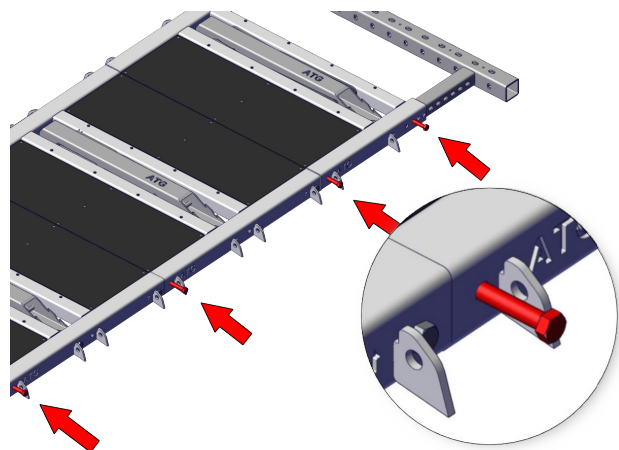
Install the final Center Frame with the Box Links inside the Frame. Once the Frame is in place, use a screwdriver to push the Box Links into position and install one M20x120 Bolt to each.

CAUTION	<p>MANUAL LIFT: Manual lift of heavy parts with potential for injury or damage.</p> <ul style="list-style-type: none"> • Perform 4-man lifts on Frames, using the correct Lifting Handles. • Ensure the hooks of Lifting Handles face the direction of travel. • Never use Lifting Handles to drag Frames.
CAUTION	<p>SLIP/TRIP/FALL: Frames must be fit to the location and must not span any elevation.</p>
NOTE	<p>Do not install any Bolts. The array will be adjusted once all Frames are in place.</p>

Step 9



Step 10



Adjust the fit of the array with the Lift Handles by sliding each Frame in the array individually to ensure that both ends of the array are approximately equal.

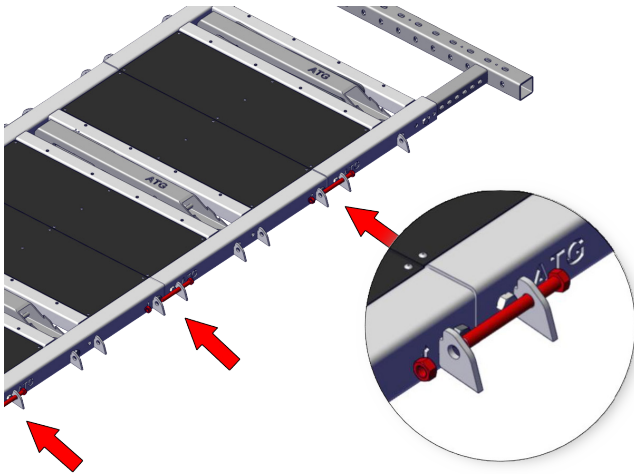
Insert M20x120 Bolt into the front and rear of every Frame, next to the M20x120 Bolts installed earlier. This secures both sides of every Box Link in the array.

NOTE	<p>Avoid one side of the array being flush against the Curb/Wall Assembly with the other side of the array having a large gap. This would create a large gap between Frame walkways and create a trip hazard for the public.</p>
-------------	--

DEPLOYMENT

INSTALL ARRAY

Step 11



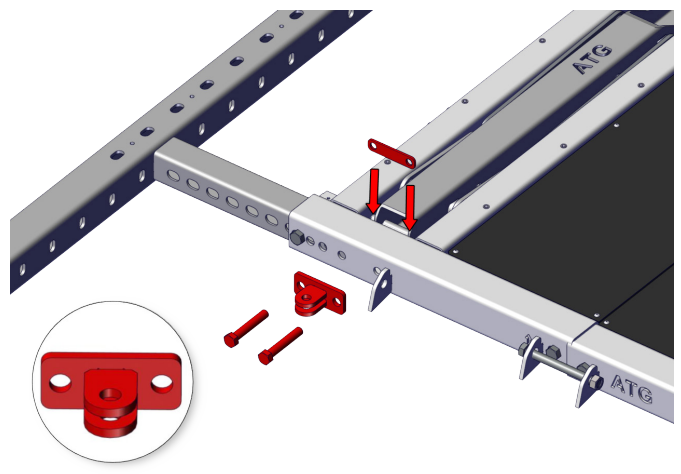
Install an M20x200 Bolt and M20 Nut to the Bolt Spikes next to every pair of M20x120 Bolts. This retains the M20x120 Bolt.

Adjust each M20 Nut until Frames and Board Panels are flush.

NOTE

A Crowbar can be inserted between the M20x200 Bolt and Frame to make minor adjustments.

Step 12



Place the two-hole Clevis at the sockets behind the Spike on the start and end-frames. Secure the Clevis with two M20x120 Bolts inserted through the Clevis and Frame into the Brace Plate.

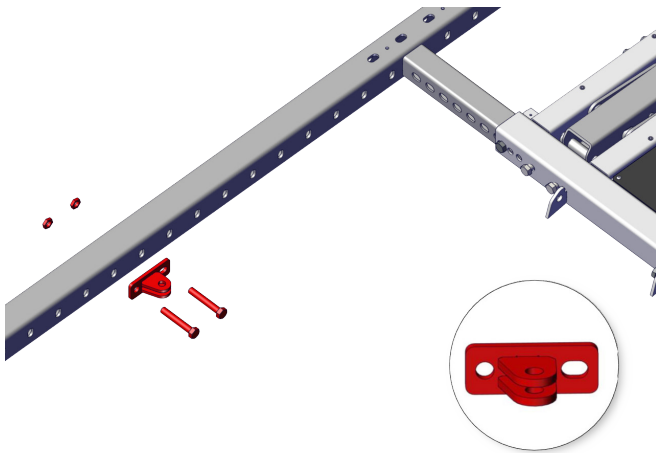
NOTE

Take care to fit the correct Clevis.

NOTE

The Cover must be off and the Spike lowered to install/remove Brace Plate.

Step 13

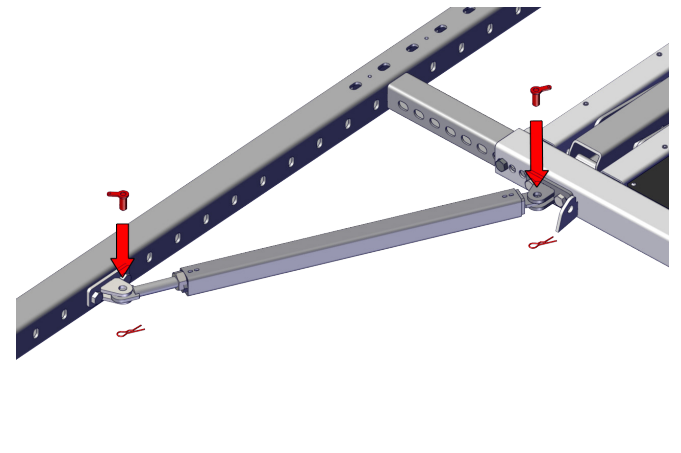


Place the hole-slot Clevis at two sockets on the Curb/Wall Assembly, allowing at least 30 degrees angle between the Clevis and Handed Frame. Attach with two M20x120 Bolts and M20 Nuts.

NOTE

Take care to fit the correct Clevis.

Step 14

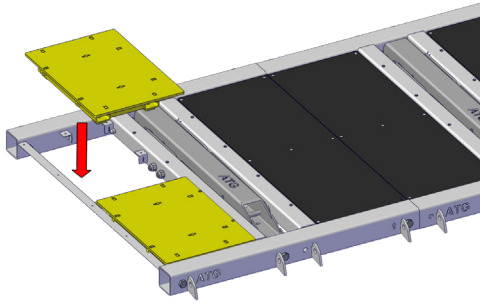


Adjust the threaded bar of the Brace to fit to each Clevis and secure each end with a Clevis Pin and R-Clip.

DEPLOYMENT

INSTALL ARRAY

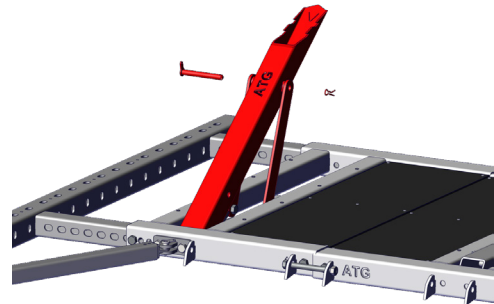
Step 15



If required, use two Lifting Keys and perform a two-man lift to install the metal plates onto the Emergency Vehicle Access Frames.

CAUTION **MANUAL LIFT:** Manual lift of heavy parts with potential for injury or damage.

Step 16

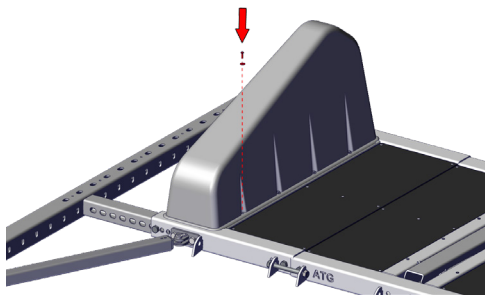


Lift each Spike and Front Spike Arm, and install the Pin and R-Clip. Repeat for the Rear Spike Arm.

DANGER **CRUSH:** Potential for trapped limbs. NEVER place any object under a raised Spike.

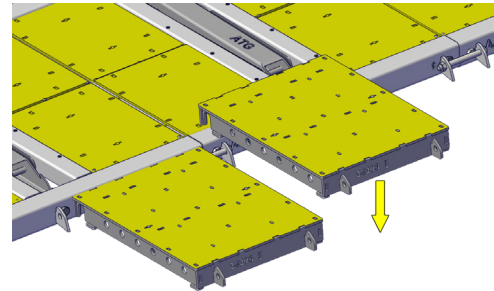
DANGER **CRUSH:** Always secure the Spike by the Front Arm first.

Step 17



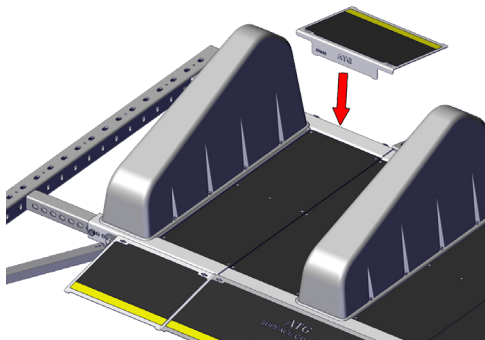
Place Cover over the Spike and Install Washers and M8x25 Screws.

Step 18



Where EVA Frames are used in conjunction with Extension Plates: Fit the Extension Plates to the front and rear of the Frame.

Step 19

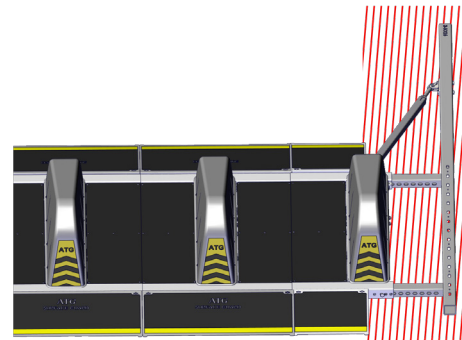


Slot Ramps into place. Emergency Vehicle Access Ramps require a two man lift with the Lifting Key tool.

CAUTION **MANUAL LIFT:** Manual lift of heavy parts with potential for injury or damage.

CAUTION **SLIP/TRIP/FALL:** Ramps must be fit to the location and flush with the surface. They absolutely must not span any elevation and present a gap.

Step 20

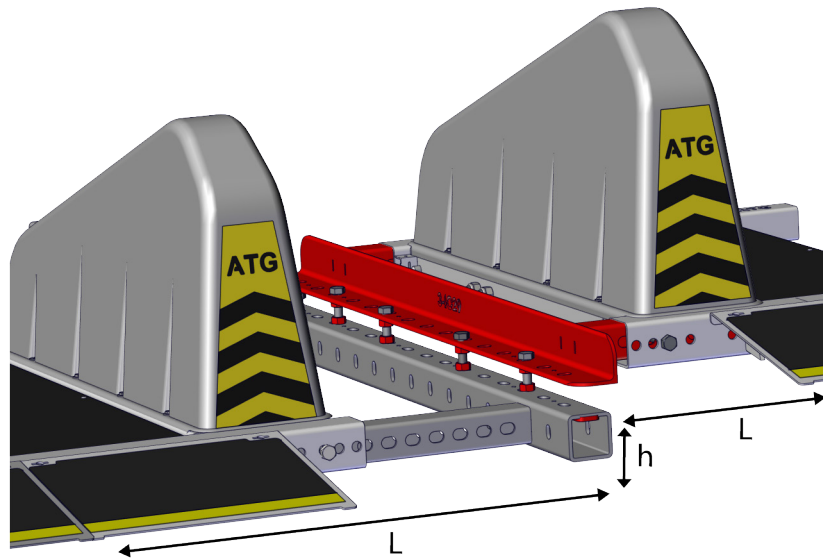


Isolate each Curb/Wall Assembly from the public with barriers, cordons, cones, or sandbags.

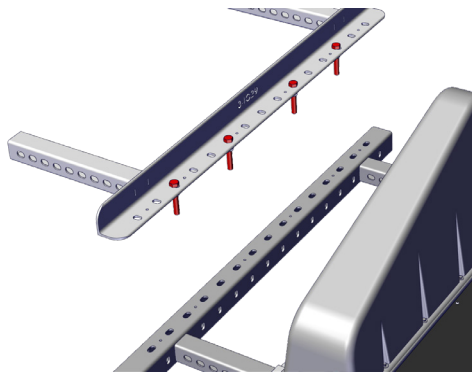
DEPLOYMENT

TRANSITIONS

TRANSITION ARRAY USING TRANSITION ASSEMBLY

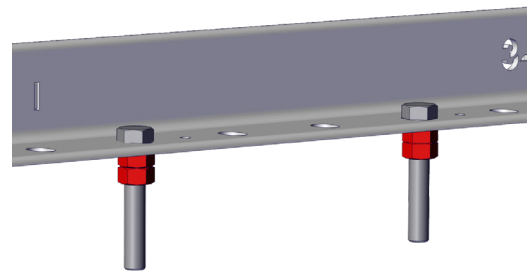


Step 1



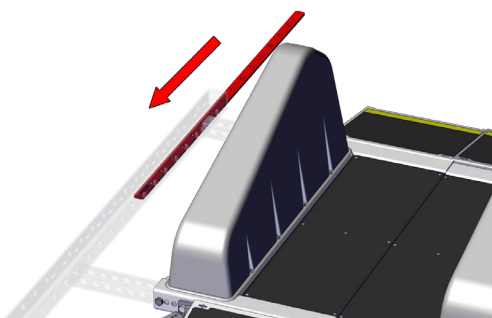
Place at least four evenly spaced M20x200 Bolts into the Transition Assembly.

Step 2



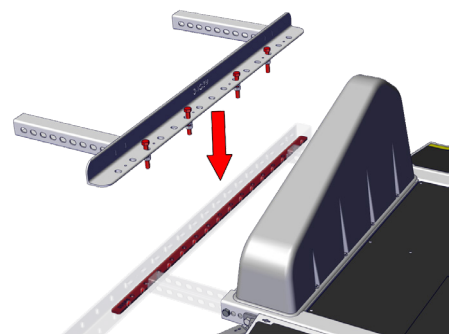
Fit two M20 Nuts onto the thread of each M20x200 Bolt and tighten until the bolt head is flush.

Step 3



Insert a Curb Bolt Plate into the Curb/Wall Assembly.

Step 4


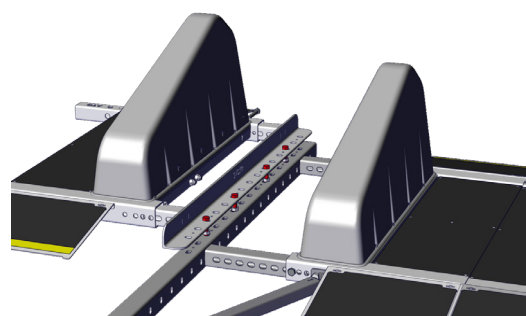


Place the Transition Assembly onto the Curb/Wall Assembly. Feed the Bolts through the slots into the Curb Bolt Plate threaded holes and screw until tight.

DEPLOYMENT

TRANSITIONS

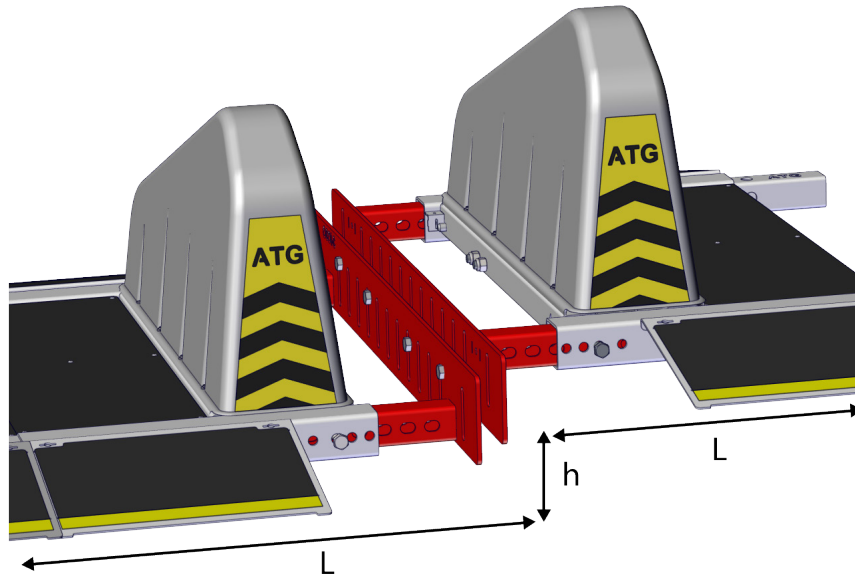
TRANSITION ARRAY USING TRANSITION ASSEMBLY

<p>Step 5</p>  <p>A 3D perspective view of a transition assembly. A dark grey metal plate with four red bolts is being lifted from a base. The plate has the number '24929' printed on it. The base has two M20 nuts visible, which are being adjusted against the plate.</p>	<p>Step 6</p>  <p>A 3D perspective view showing two transition assemblies installed on a grey pavement surface. The assemblies are connected to form a continuous array. The transition plates are dark grey with a curved top edge. The base plates are black with yellow markings.</p>
<p>Adjust both M20 Nuts until flush against the Curb/Wall Assembly. Grip and lift the four Bolts to lift the Curb Bolt Plate. Adjust both M20 Nuts until flush and tighten with hand tools until hand-tight.</p>	<p>Continue the array on the pavement/sidewalk per 'Install Array'. Ensure the width of the transition is kept to a minimum and does not exceed the width of a full walkway.</p>

DEPLOYMENT

TRANSITIONS

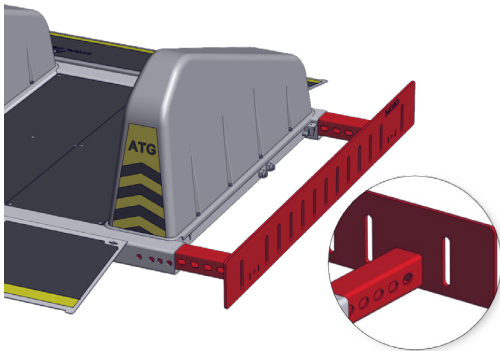
TRANSITION ARRAY USING TRANSITION PLATE



NOTE

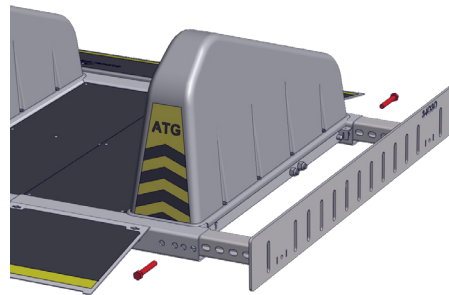
Curb/Wall Assemblies must be used at either end of the array where Transition Plates are used to transition over a curb.

Step 1



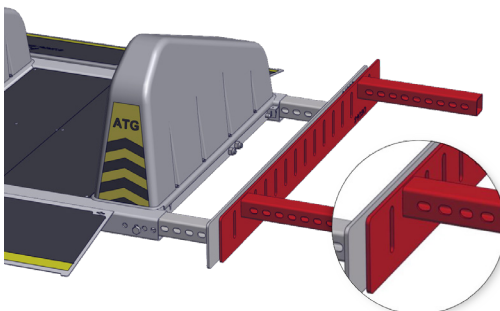
Install a Transition Plate into the Handed Frame on the road, with the slotted surface facing up.

Step 2



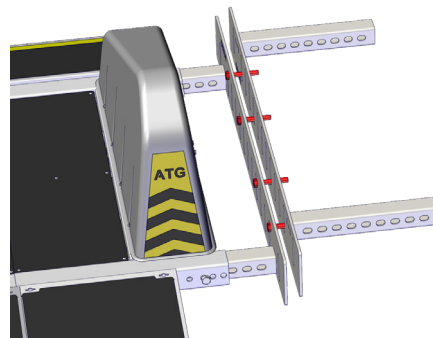
Secure in place with M20x120 Bolts.

Step 3



Place a Transition Plate on the pavement/sidewalk, with the slotted surface facing down.

Step 4

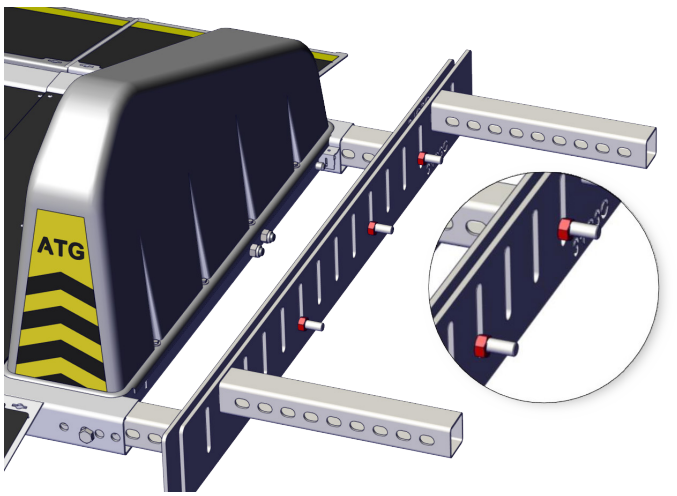
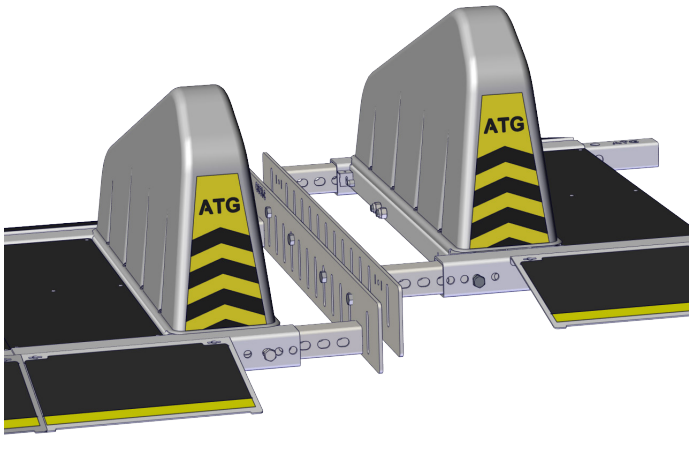


Install at least four M20 Bolts through the slots of both Transition Plates.

DEPLOYMENT

TRANSITIONS

TRANSITION ARRAY USING TRANSITION PLATE

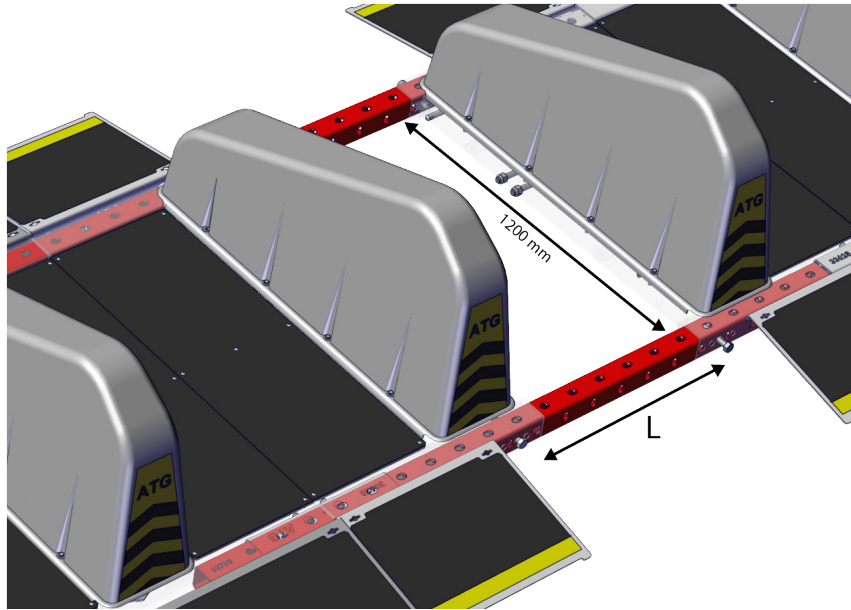
<p>Step 5</p> 	<p>Step 6</p> 
<p>Fit M20 Nuts to each M20 Bolt and tighten with hand tools until hand-tight.</p>	<p>Continue the array on the pavement/sidewalk per 'Install Array'. Ensure the width of the transition is kept to a minimum and does not exceed the width of a full walkway.</p>

DEPLOYMENT

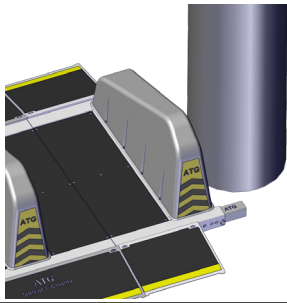
DEVIATIONS

DEPLOY ARRAY AROUND AN OBSTACLE

Where the array must bypass an obstacle less than 1200mm (47.¼-in) front-to-rear length, without staggering the array.

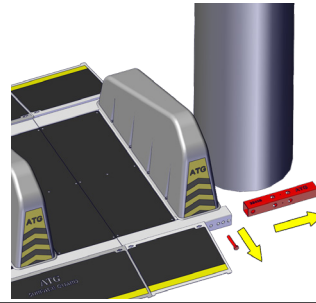


Step 1



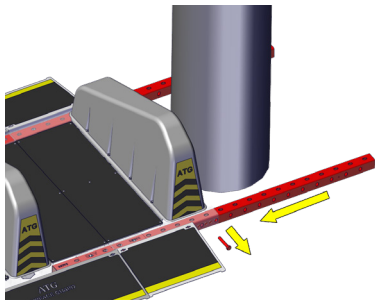
Assemble the array per 'Install Array' up to the obstacle face. Ensure that a Handed Frame is used adjacent to the obstacle.

Step 2



Remove the Box Links from the Handed Frame adjacent to the obstacle.

Step 3

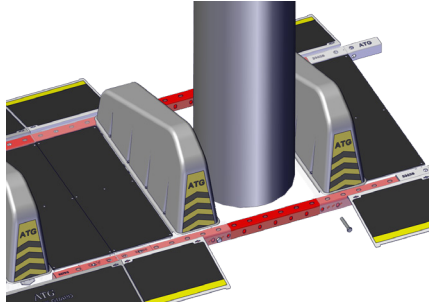


Install 80mm (3.¼-in) Box Section to the front and rear of the Handed Frame.

NOTE

The Box Section can span into one or two frames as illustrated above.

Step 4



Fit a Handed Frame to the two 80mm (3.¼-in) Box Section on the other side of the obstacle and continue the array per 'Install Array'.

NOTE

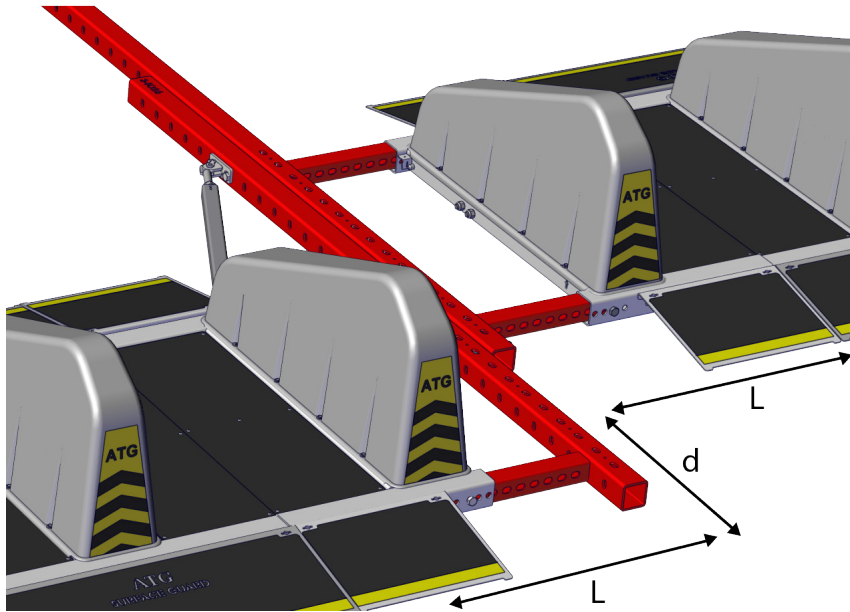
Sandbags or foam can be placed between the Box Section and obstacle to assist load spreading in the event of impact.

DEPLOYMENT

DEVIATIONS

STAGGER ARRAY USING CURB/WALL BAR

Where the array must route around an obstacle:



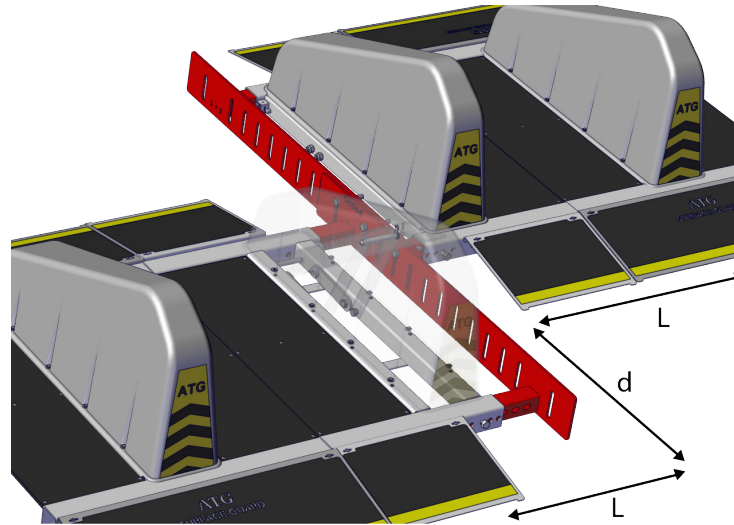
<p>Step 1</p>	<p>Step 2</p>
<p>Assemble the array per 'Install Array' up to where the stagger is required - ensuring a Handed Frame is used adjacent to the stagger. Remove the Box Links from the Handed Frame.</p>	<p>Fit a Curb/Wall Assembly to the Handed Frame.</p>
<p>Step 3</p>	<p>Step 4</p>
<p>Place a second Curb/Wall Assembly next to the first Curb/Wall Assembly with opposing facing, and offset the length by the distance required to stagger the array. Install a minimum of four M20x200 Bolts and M20 Nuts to secure the Curb/Wall Assemblies together.</p> <div data-bbox="87 1881 758 2016" style="border: 1px solid black; padding: 5px;"> <p>NOTE At least four Bolts are required to provide structural strength to the array upon impact. Installing fewer bolts may compromise the potential effectiveness of the array.</p> </div>	<p>Fit a Handed Frame to the second Curb/Wall Assembly and continue the array per 'Install Array'.</p> <div data-bbox="790 1780 1460 1892" style="border: 1px solid black; padding: 5px;"> <p>NOTE Isolate each Curb/Wall Assembly from the public with barriers, cordons, cones, or sandbags.</p> </div>

DEPLOYMENT

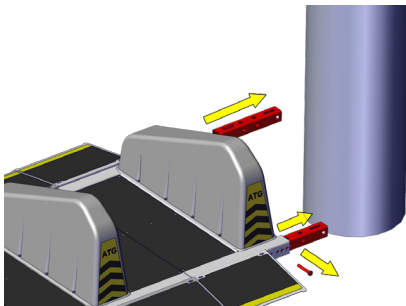
DEVIATIONS

STAGGER ARRAY USING TRANSITION PLATE

Where an array must route around an obstacle:

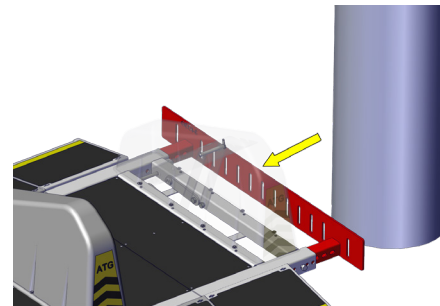


Step 1



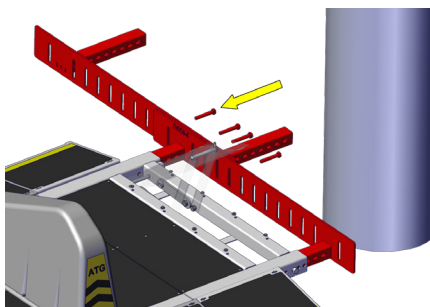
Assemble the array per 'Install Array' up to where the stagger is required - ensuring a Handed Frame is used adjacent to the stagger. Remove the Box Links from the Handed Frame.

Step 2



Fit a Transition Plate to the Handed Frame.

Step 3

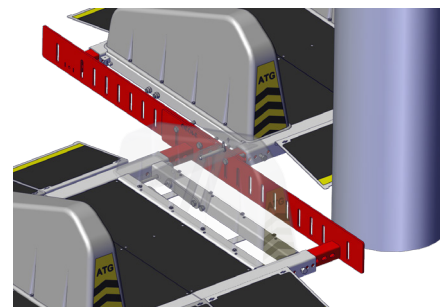


Place a second Transition Plate next to the first Transition Plate with opposing facing, and offset the length by the distance required to stagger the array. Install a minimum of four M20 Bolts and Nuts to secure the Transition Plates together.

NOTE

At least four Bolts are required to provide structural strength to the array upon impact. Installing fewer Bolts may compromise the potential effectiveness of the array.

Step 4



Fit a Handed Frame to the second Transition Plate and continue the array per 'Install Array'.

NOTE






Isolate each Transition Plate from the public with barriers, cordons, cones, or sandbags.

DEPLOYMENT

ANCHOR

ANCHOR ARRAY TO NEARBY FIXED OBJECT

Where an array is to be anchored to existing fixed street furniture or trees:

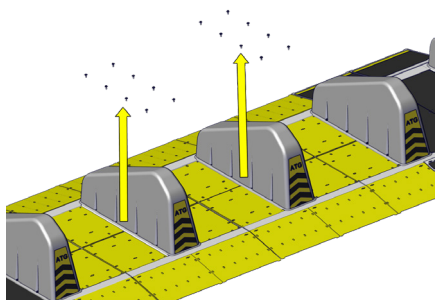
<p>Step 1</p> 	<p>Step 2</p> 
<p>Install an M20 Long Eye Bolt with the threads outward into either front hole of the Frame. Fit an M20 Nut to secure.</p>	<p>Place the Energy Absorbing Strap between the Front Spike Arms underneath the Spike. Double-loop a 1-meter (3.3 ft) 2T rated Sling over the Spike and Energy Absorbing Strap.</p>
<p>Step 3</p> 	<p>Step 4</p> 
<p>Loop the other 1-meter (3.3 ft) 2T rated Sling through one of the Energy Absorbing Strap eyes and fit both ends of the Sling to a Shackle. Fit and secure the shackle to the eye of the M20 Long Eye Bolt.</p>	<p>Loop the 3T rated Sling (length subject to kit) through the other eye of the Energy Absorbing Strap and around the anchoring feature. Feed the loop underneath the Frame (not illustrated) and fit both ends of the Sling to a Shackle and secure.</p> <div data-bbox="790 1406 1455 1579"><p>CAUTION SLIP/TRIP/FALL: If limitations prevent the Sling looping underneath the Frame a trip hazard is created (as illustrated) with potential for minor injury. Ensure to cordon off the area accordingly.</p></div>
<p>Step 5</p> 	<p>Place the Cover over the Spike and install Washers and M8x25 Screws.</p>

EMERGENCY VEHICLE ACCESS

CAUTION

Drivers must cross the Emergency Vehicle Access Frames no faster than walking speed. Exceeding this may cause damage to the vehicle.

Step 1

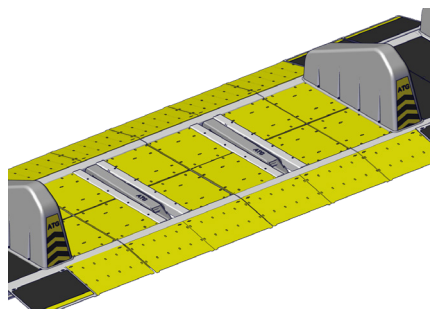


Remove the M8x25 Screws and Washers from the Covers on the Emergency Vehicle Access Frames. Lift and remove the Covers.

CAUTION

IMPACT: Perform the next step immediately after removing Covers. Raised uncovered Spikes have potential to cause injury.

Step 2

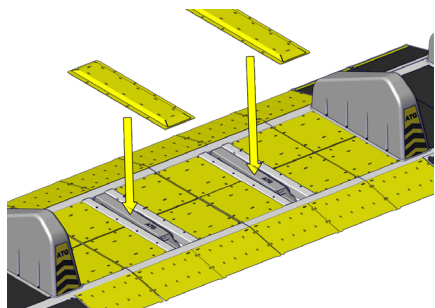


Support each Spike and remove the R-Clips and Pins from the Front and Rear Arms. Lower each Spike into the Frame.

DANGER

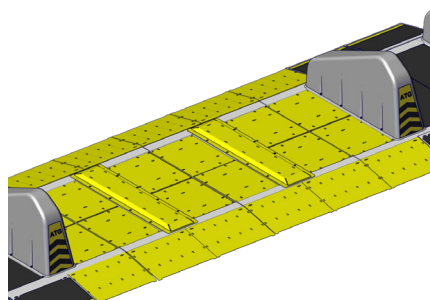
CRUSH: Potential for trapped limbs. NEVER place any object under a raised Spike.

Step 3



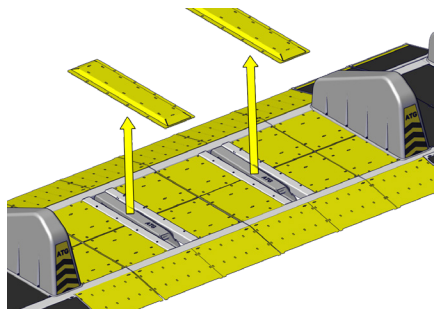
Using two Lifting Keys and two-man lift each Vehicle Cover over each lowered Spike.

Step 4



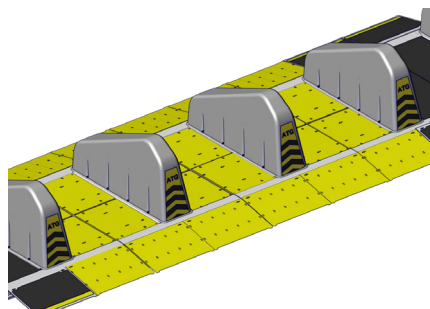
With all EVA Frame Spikes down and EVA Covers in place, It is now safe for the Emergency Vehicle to cross.

Step 5



When no further Emergency Vehicles require access through the Surface Guard Array, remove the Vehicle Covers using two Lifting Keys and two-man lifts.

Step 6



Raise each Spike by lifting the Spike and Front Spike Arm and installing the Pin and R-Clips. Repeating for the Rear Spike Arm.

Place a Cover over each Spike and secure with Washers and M8x25 Screws.

DANGER

CRUSH: Potential for trapped limbs. NEVER place any object under a raised Spike.

DANGER

CRUSH: Always secure the Spike by the Front Arm First

DISCONNECT AND STORE

At the end of the deployment:

NOTE Store Frames in stacks of up to 6. Store Covers in stacks of no more than 15.

1. Remove any Anchoring straps and kits from the array and fixed street furniture/trees (if deployed).
2. Remove every Ramp from the array. Use two Lifting Keys and perform a two man lift to remove any Emergency Vehicle Access Ramps.
CAUTION **MANUAL LIFT:** Manual lift of heavy parts with potential for injury or damage.
3. Remove all Screws and Washers from the Covers and remove all Covers from the array.
4. Lowereach Spike in the Array by supporting the Spike and removing the R-Clip and Pins from the Rear Arm followed by the Front Arm and lowering the Spike and Arms into the Frame.
DANGER **CRUSH:** Potential for trapped limbs. NEVER place any object under a raised Spike.
CAUTION **IMPACT:** Lower Spikes immediately after removing the Cover. Uncovered raised Spikes have potential to cause blunt-force injury.
5. Using two Lifting Keys, perform a two-man lift to remove every metal Plate from Emergency Vehicle Access Frames, if installed.
6. Starting with a Frame at one end of the array, remove the M20 Nuts and M20x200 Bolts and the M20x120 Bolts.
7. Use a hand tool to move the Box Links into the Frame.
8. Insert Lift Handles into the Bolt Spike eyes on each side of the Frame.
CAUTION **DROP:** Potential for dropping of heavy parts causing minor injury. Ensure the hooks point in the direction of travel.
9. Perform a four-man lift and remove the Frame from the array.
CAUTION **MANUAL LIFT:** Manual lift of heavy parts with potential for injury or damage.
10. Reinstall two Box Links into the Frame and secure with two M20x120 Bolts:
 - Center Frame/Emergency Vehicle Access Frames: holes located in the center of the Frame - inbetween the middle two Bolt Spikes.
 - Handed Frames: at the three holes located below the Spike, adjacent to the Bolt Spike.
11. Insert the M20x200 Bolts through the Bolt Spike eyes on each side of the Frame.
 - Center Frame/Emergency Vehicle Access Frames: through the two Bolt Spikes in the middle of the Frame.
 - Handed Frames: through the Bolt Spike below the Spike, with the Bolt head on the Board Panel side of the Bolt Spike. (i.e. with the length of the bolt retaining the M20x120 Bolts).
12. Fit the M20 Nuts to the M20x200 Bolts.
13. Repeat the previous steps to remove all of the Frames from the Array. If Transition, Deviation, or Anchor Assemblies have been used in the Array, remove as they are encountered during breakdown of the array.

MAINTENANCE

WEEKLY INSPECTION

Perform these tasks on deployed arrays to maintain effective operation.

Activity	Owner Weekly
Inspect Stickers for damage or excessive wear. Replace if required.	✓
Inspect the Cover for damage or excessive wear. Replace if required.	✓

SPARES AND TOOLS

SPARES

Part Number	Description
13519	Nut M20
33922	R-Clip 4x75mm
33999	M20x120 Bolt
34000	M20x200 Bolt

TOOLS

Part Number	Description
33995	Surface Guard Full Lift Handle (for Center Frames)
33996	Surface Guard Half Lift Handle (for Left/Right Frames)
34090	Surface Guard Lifting Key (for EVA Cover, Ramps, and Plates)
-	Handheld Power Drill (Battery)
-	Flat head screwdriver
-	Hex Key (various sizes)
-	Wrench/Spanner (various sizes or variable)
-	Crowbar

WARRANTY, REPAIR CALLOUT, RETURNS, AND DISPOSAL

WARRANTY

ATG Access Ltd warrants installed equipment for 12 months from the signed handover date, unless otherwise stated, or date of dispatch in cases of equipment supply only (ex-works incoterms). In the event of failure or incident the Warranty covers the cost of parts and labour for onsite repair or following Return to Base of ex-works supplied equipment. The Warranty is subject to the equipment having been correctly installed, operated under normal conditions, and maintained correctly at the recommended intervals with records kept. It does not cover Force Majeure - incorrect use, vehicle strikes, loop failure, damage, vandalism, floods, acts of nature, terrorism, unauthorized modification, and any third party access control equipment. ATG Ltd Terms and Conditions apply.

REPAIR CALLOUT

Requests for service must be received in writing specifying the fault, contact details, and purchase order number. Please use the dedicated e-mail address if the installation is a manual bollard.

E-Mail: service@atgaccess.com
manual.service@atgaccess.com (manual bollard installations dedicated)
Tel: +44 (0)8456 75 75 74 (Mon to Thur 0830-1700 and Fri 0830-1400)
Fax: +44 (0)8456 75 99 55
Post: Service Department
ATG Access Ltd
CoBaCo House, North Florida Road
Haydock Industrial Estate
Haydock
WA11 9TP
UNITED KINGDOM

ATG Access Ltd offer a range of After Warranty Servicing and Maintenance Contracts incorporating parts and labour costs, and minimum callout time commitments. They are recommended to ensure continued safe operation within, and beyond the warranty period.

PART RETURN

Contact our Service Department for a Return Material Authorization (RMA) number before sending return parts to ensure they are properly tracked to minimize errors or delays.

DISPOSAL

The system owner is responsible for disposal. The equipment and its component parts are to be recycled and disposed of in accordance with environmental regulations and legislation. Hydraulic oil (where used) requires special consideration for disposal.

COPYRIGHT

Whilst every effort has been made to ensure that all information in this document is correct, ATG Access Ltd cannot be held liable for inaccuracies and reserve the right to change product specifications or this document at any time without notice. Unauthorized distribution, reproduction, or copying any part or the whole of this document for any purpose, in any form, or by any means without prior written permission from ATG Access Ltd is a violation of copyright.

© ATG Access Ltd 2019, All Rights Reserved.
ATG Access Ltd is a member of Hill & Smith Holdings plc

