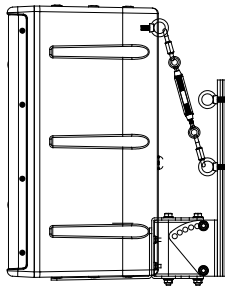




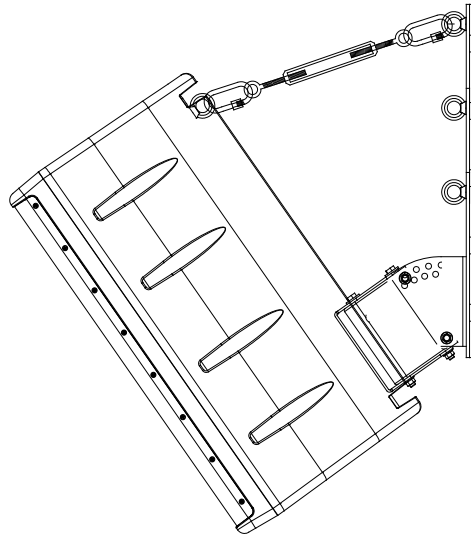
ONE SYSTEMS®

# Pan and Tilt Brackets Installation Guide (Standard and Marine grade)

## PT-76a, PT-38a, PT-30 and PT-10 INSTALLATION (Revised May 2014)



PT-38a with 108IM



PT-76a with 112IM

The PT-76a, PT-38a, PT-30 and PT-10 are easy to install and flexible systems designed to allow ONE SYSTEMS loudspeaker products to be mounted to wall and certain pole structures. The PT-10 and PT-30 instructions are found at the end of this document. The only products approved for use with the PT-76a PT-38a, PT-30 and PT-10 are as follows:

### **PT-76a**

112IM  
112IM-70/100  
112IM-100  
212CIM

### **PT-38a**

108IM  
108IM-70/100  
208CIM  
208CIM-70/100  
108CIM

**PT-76a**

212CIM-70/100  
212IM  
212IM-70/100  
312CIM  
312CIM-70/100  
Cross Field Array (CFA)  
Cross Field Array – 2 (CFA-2)  
118IM Sub

**PT-10**

103IM  
103IM-70  
103IM-100  
106IM  
106IM-70  
106IM-100

**PT-30**

108IM  
108IM-70/100  
208CIM  
208CIM-70/100  
108CIM

**NOTE:** The PT-76a and PT-38a were designed for installation on flat surfaces ONLY! The PT-76 and PT-38 may NOT be pole mounted. Only the PT-30 is designed and approved for pole mounting. One Systems offers the Pole Mount System-3 and the Pole Mount System Ex-3 as well as the PT-30 for pole mounting applications. (See more information in the PT-30 section below regarding pole mounting)

**NO OTHER LOUDSPEAKERS SHOULD BE SUBSTITUTED!**

The following actions MUST be performed PRIOR to beginning the installation of the PT-76a, PT-38a, PT-30 or PT-10:

1. This installation guide must be completely read and understood
2. The instruction manual “Rigging and Suspension of ONE SYSTEMS Products” must be read and understood. (This instruction manual is available along with other technical papers at [www.onesystems.com](http://www.onesystems.com) under the “Documentation” tab)
3. The structure of the mating surface MUST be capable of supporting the combined weight of the pan and tilt bracket, the loudspeaker and all associated rigging; and must satisfy the required safety factors specified by local and national codes, as well as safe rigging practices.  
The PT-76a weighs 10.5kg (23.1 lbs). The Pt-38a weights 4.16kg (9.2 lbs).  
The PT-30 weighs 4.16kg (9.2 lbs). The PT-10 weighs 0.274kg (0.6 lbs)

4. The PT-76a, PT-38a, PT-30 and PT-10 pan and tilt brackets should be installed only by someone experienced in the overhead suspension of items. They should be familiar with applicable local/national codes governing the installation of these types of products and those governing the attachment of these types of products to specific pole structures.
5. The PT-76a and PT-38a are available in both 304 grade and 316 (Marine) grade stainless steel. If the Marine grade version (316 stainless steel) is being used then all associated rigging must also be 316 grade stainless steel. If the PT-30 Marine grade product is being used please note that 316 grade Band-It straps are required.

**NOTE:** Caution should be exercised when connecting One Systems Marine grade products and Marine grade rigging to other metallic, non 316 grade stainless steel surfaces (dissimilar metals). The potential for galvanic corrosion is high in marine environments where the One Systems Marine grade enclosures and rigging are specified or required. Compatible metals and appropriate anode to cathode area ratios must be maintained. A structural engineer with galvanic corrosion experience should be consulted prior to installation of marine grade products, or ANY One Systems products in marine environments.

**CAUTION:** All structures outdoors are subjected to wind forces. These forces must be considered when suspending any product outdoors. It is necessary to know the “Effective Projected Area” (EPA) of the loudspeaker prior to installation of the loudspeaker and the PT-76a, PT-38a, PT-30 or PT-10. See Appendix 1 of this installation manual for effective projected areas for each enclosure rated for use with the PT-76a, PT-38a, PT-30 and PT-10.

**IMPORTANT NOTE:** All products in direct weather installations can be subjected to high wind speeds. For wind speed exposure over 74 miles per hour (119.1 kilometers per hour, 64.3 knots) the loudspeaker enclosure, bracket, banding, and link assembly or safety must be inspected for signs of damage or fatigue!

## INSTALLATION

**NOTE:** See separate instructions below for the PT-10 and PT-30

The PT-76a and PT-38a consist of three parts: the wall bracket, the loudspeaker bracket, and the Link. The PT-76a wall bracket and loudspeaker bracket are shown in Figure 1. Figure 1a shows the wall bracket portion of the PT-76a. The PT-76a bracket allows the loudspeaker to be oriented from a 0 degree down tilt to a maximum down tilt of 35 degrees in 5 degree increments. The PT-38a allows a down tilt of 40 degrees in 8 degree increments.

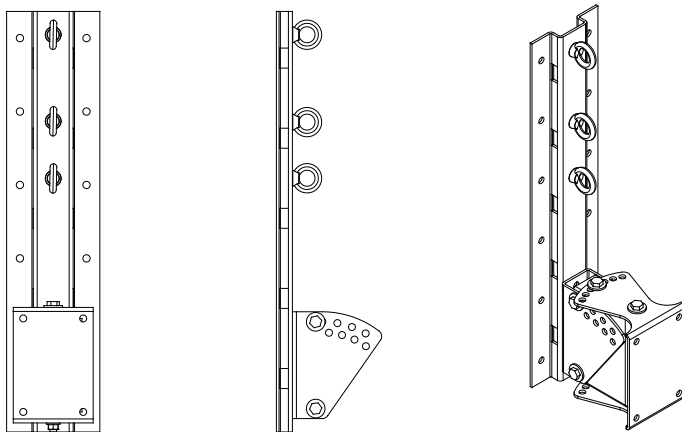


Figure 1

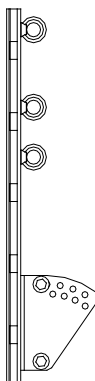


Figure 1a

The PT-38a wall bracket and loudspeaker bracket are shown in Figure 2.

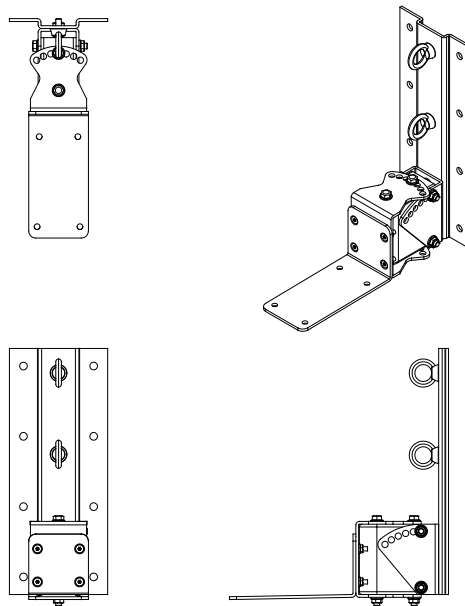


Figure 2

Prior to mounting the wall bracket to the wall the speaker mount section should be removed. See Figures 2a and 2b.

**NOTE:** The M10 bolts associated with the “pan” axis should be left in place, as shown in both Figures 2a and 2b.

The wall bracket section should now be mounted to the wall surface. The PT-76a has 12 mounting holes and the PT-38a has 8 mounting holes for allowing fasteners to join the bracket and loudspeaker assembly to the mating surface.

**IT IS NECESSARY TO USE ALL MOUNTING HOLES TO INSURE A SAFE AND SECURE MATE TO THE ASSOCIATED SURFACE! (12 for the PT-76a and 8 for the PT-38a)**

All fasteners associated with the mounting of the Pan and Tilt bracket and loudspeaker assembly to the mating surface are the responsibility of others. The design and structural capacity of mating surfaces (such as walls) vary greatly and specific fasteners are designed for use with specific mating surfaces. One Systems does not recommend any mating fasteners and strongly urges the installer to consult with one experienced in suspension of products from the specific mating surfaces and the appropriate choice of fasteners for those specific surfaces.

The wall bracket section should be secured firmly to the mating surface using the appropriate fastening system. The fastening system should be determined by the structure of the mating surface.

IT IS CRITICAL THAT THE MATING SURFACE BE CAPABLE OF SUPPORTING THE LOAD OF THE PT BRACKET, THE LOUDSPEAKER AND ALL SUSPENSION HARDWARE, AS WELL AS PROVIDING THE PROPER SAFETY FACTORS. DO NOT ATTEMPT TO SUSPEND THE BRACKET AND LOUDSPEAKER UNTIL THE STRUCTURAL CHARACTERISTICS OF THE MATING SURFACE ARE UNDERSTOOD. DO NOT INSTALL THE PT BRACKET AND LOUDSPEAKER IF THE MATING SURFACE IS NOT CAPABLE OF SUPPORTING THE ENTIRE ASSEMBLY WEIGHT, AS WELL AS PROVIDING THE REQUIRED SAFETY FACTORS!

After the PT wall section of the bracket is securely mounted to the mating surface, the loudspeaker section should be mounted to the loudspeaker using the fasteners supplied. (DO NOT SUBSTITUTE FASTENERS) The loudspeaker mount section of each bracket is shown in figures 2a and 2b. **IMPORTANT, see the note below regarding the supplied gasket. This note applies to the PT-76a bracket ONLY!**

**NOTE:** There is a silicone rubber gasket supplied with the PT-76a. This gasket is used when the 112IM, 212CIM, 212IM, 312CIM or 115TW is mounted using the PT-76a. (This gasket is NOT REQUIRED when mounting the CFA or CFA-2 enclosures.) Remove the pressure sensitive adhesive covering and attach the gasket to the mounting surface of the PT-76a bracket where it joins the loudspeaker as shown below.

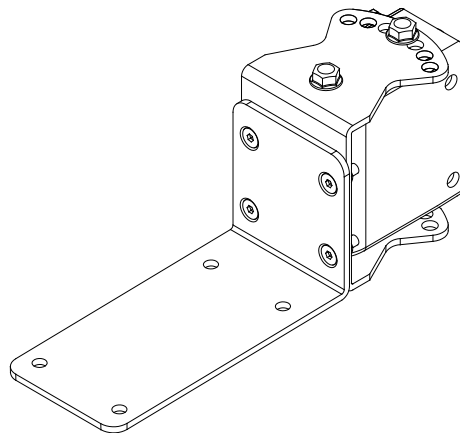
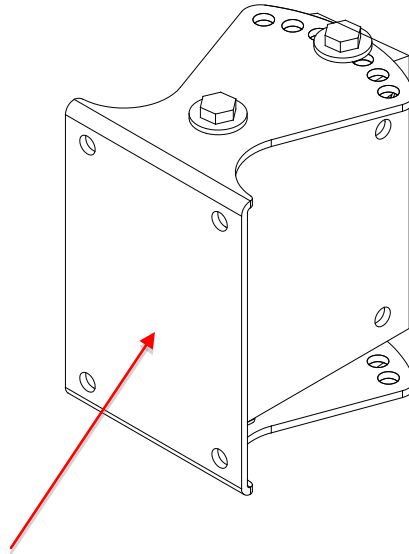


Figure 2a PT-38a speaker mount bracket



**NOTE:** The supplied gasket must be mounted to this surface of the PT-76a PRIOR to attaching this part to the rear of the 112IM, 212CIM, 212IM or 312CIM enclosure!

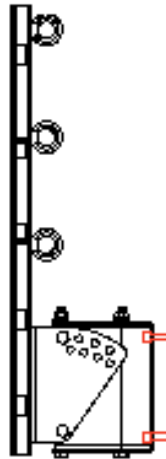
Figure 2b PT-76 speaker mount bracket

The PT-76a mounts to the rear of ALL IM series enclosures, except for the 108IM and 208CIM, using the 140mm x 90mm M10 locations as shown in figure 2c. The PT-38a mounts to the top or bottom or top of the 108IM or 208CIM as shown in figure 2c using the M8 locations. The mounting locations are highlighted in red. **(SEE IMPORTANT NOTE REGARDING THE M10 FLAT WASHERS AND THE PT-76a BELOW)**

***DO NOT SUBSTITUTE MOUNTING LOCATIONS!***

**NOTE:** There are 8 each hex head M10 bolts supplied in the mounting kit of the PT-76a. When mounting the 115TW (wood) enclosures to the PT-76 use 4 each of the 45mm (longer) M10 bolts. The 4 shorter M10 bolts are used for the IM series injection molded enclosures and the CFA enclosures.

**NOTE:** There are M10 flat washers in the PT-76a kit. **DO NOT USE THESE WASHERS FOR MOUNTING THE 112IM, 212CIM, 212IM, or 312CIM!** The M10 flat washers are for use with the CFA and CFA-2 ONLY! (See the image below, DO NOT use flat washers under the M10 bolts used to mount the 112IM, 212CIM, 212IM, or 312CIM.)



The image above shows the M10 bolts WITHOUT WASHERS used to mount either a 112IM, 212CIM, 212IM, or 312CIM. The M10 flat washers are used ONLY with the CFA or CFA-2 enclosure!

Additionally, there are forged shoulder eyebolts supplied in the PT kits, 4 each M10 eyebolts for the PT-76a and 3 each M8 eyebolt for the PT-38a. One of these eyebolts must be installed in the top, rear portion of the enclosure. When installing the PT-76a, use the longer of the two M10 eyebolts for wood enclosures and the shorter of the two M10 eyebolts for the IM series enclosures. Make sure that the eyebolt is seated on the surface of the enclosure.

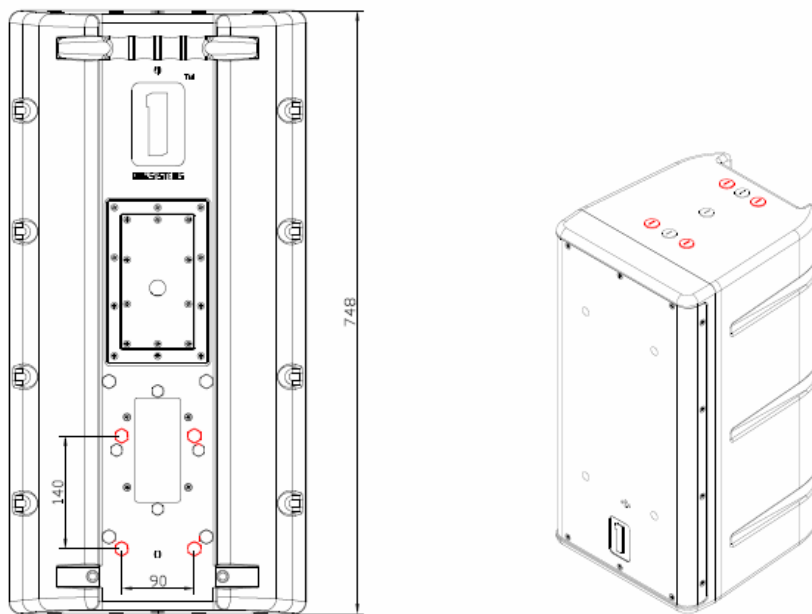


Figure 2c



The loudspeaker and loudspeaker section of the bracket may now be joined to the wall section and the required pan and tilt angles selected. This is a two person job and extreme care should be exercised to avoid serious injury.

The M10 tilt pivot bolt should be inserted first and secured but not completely tightened using the nylon insert M10 nuts supplied. The tilt pivot bolt is shown below in Figure 2d. Then the M10 tilt aiming bolt should be inserted and nylon insert nuts applied. Then the tilt axis bolts should be tightened.

**CAUTION: DO NOT REMOVE THE PAN PIVOT BOLT**

Next the pan angle may be adjusted by removing the M10 pan aiming bolt, but NOT the pan pivot bolt, and setting the desired pan angle and then re inserting the M10 bolt.

Once both the tilt and pan angles are set, make sure that all bolts are tight and secure.

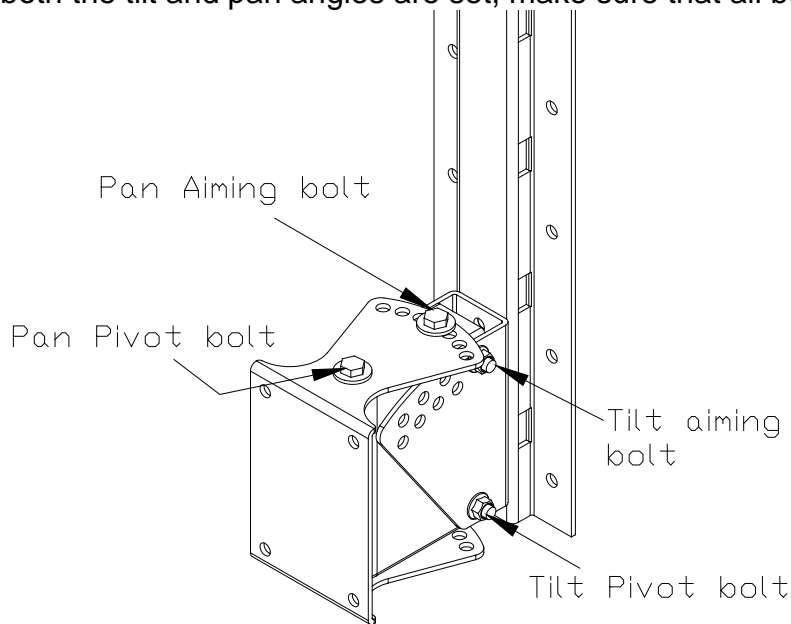


Figure 2d

**INSTALLING THE LINK**

Figure 3 is a representation of the Link assembly. This assembly **MUST** be used whenever the PT-76a, PT-38a or the PT-30 is being used. Each pan and tilt bracket is supplied with a link assembly.

**SEE SECTION 5 OF THIS MANUAL FOR DETAILS ON THE PROPER MOUNTING OF THE LINK ASSEMBLY!**

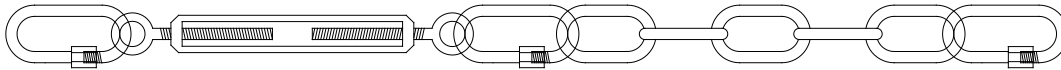
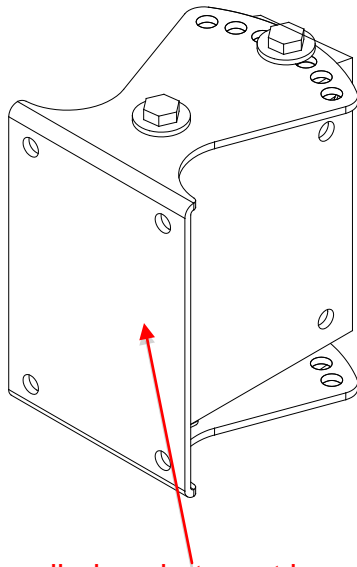


Figure 3

1. Next, the loudspeaker bracket should be mounted to the loudspeaker using the supplied M10 (M8 for the 108IM and 208CIM) stainless steel bolts and washers. **DO NOT SUBSTITUTE ANY PARTS**

**NOTE:** There is a silicone rubber gasket supplied with the PT-76. This gasket is used when the 112IM, 212CIM, 212IM or 312CIM is mounted using the PT-76. (This gasket is **NOT REQUIRED** when mounting the CFA or CFA-2 enclosures.) Remove the pressure sensitive adhesive covering and attach the gasket to the mounting surface of the bracket where it joins to either the 112IM or 212CIM as shown below. (This does **NOT APPLY** to Pt-38 or PT-30 bracket assemblies.)



**NOTE:** The supplied gasket must be mounted to this surface of the PT-76a **PRIOR** to attaching this part to the rear of the 112IM, 212CIM, 212IM, or 312CIM enclosure! This applies to the PT-76a only!

2. Now the M10 (M8 for 108IM and 208CIM) forged shoulder “eye” bolt should be installed in the top rear of the loudspeaker enclosure. Make sure that that eyebolt is seated on the enclosure surface.
3. **NOTE:** There two (2) forged shoulder eye bolts included. One has a 17mm threaded section and the second has a 40mm threaded section. Use the 17mm threaded section eye bolt for the 112IM, 212CIM, 212IM, 312CIM and CFA enclosures. Use the 40mm threaded section for the 115TW wood enclosure.

4. The loudspeaker may now be placed on the pole bracket.

**USE EXTREME CAUTION!** The loudspeaker is heavy and it is likely that the desired mounting location is high in the air. This process should never be attempted by a single person.

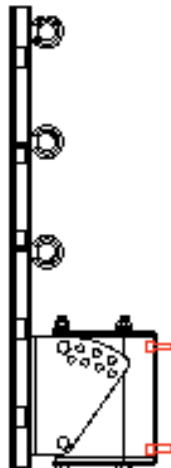
TWO OR MORE PEOPLE ARE REQUIRED TO MOUNT THE LOUDSPEAKER ENCLOSURE TO THE WALL OR POLE AND PT bracket. Safety harnesses should always be worn when working from an elevated platform.

The PT-76a mounts to the rear of ALL IM series enclosures, except for the 108IM, 108CIM and 208CIM, using the 140mm x 90mm M10 locations as shown in figure 2c. The PT-38 mounts to the top or bottom or top of the 108IM, 108CIM or 208CIM as shown in figure 2c using the M8 locations. The mounting locations are highlighted in red. **(SEE IMPORTANT NOTE REGARDING THE M10 FLAT WASHERS AND THE PT-76a BELOW)**

***DO NOT SUBSTITUTE MOUNTING LOCATIONS!***

**NOTE:** There are 8 each hex head M10 bolts supplied in the mounting kit of the PT-76. When mounting the 115TW (wood) enclosures to the PT-76 use 4 each of the 45mm (longer) M10 bolts. The 4 shorter M10 bolts are used for the IM series injection molded enclosures and the CFA enclosures.

**NOTE:** There are M10 flat washers in the PT-76a kit. **DO NOT USE THESE WASHERS FOR MOUNTING THE 112IM, 212CIM, 212IM, 312CIM or 115TW!** The M10 flat washers are for use with the CFA and CFA-2 ONLY! (See the image below, DO NOT use flat washers under the M10 bolts used to mount the 112IM, 212CIM, 312CIM, or 115TW.)



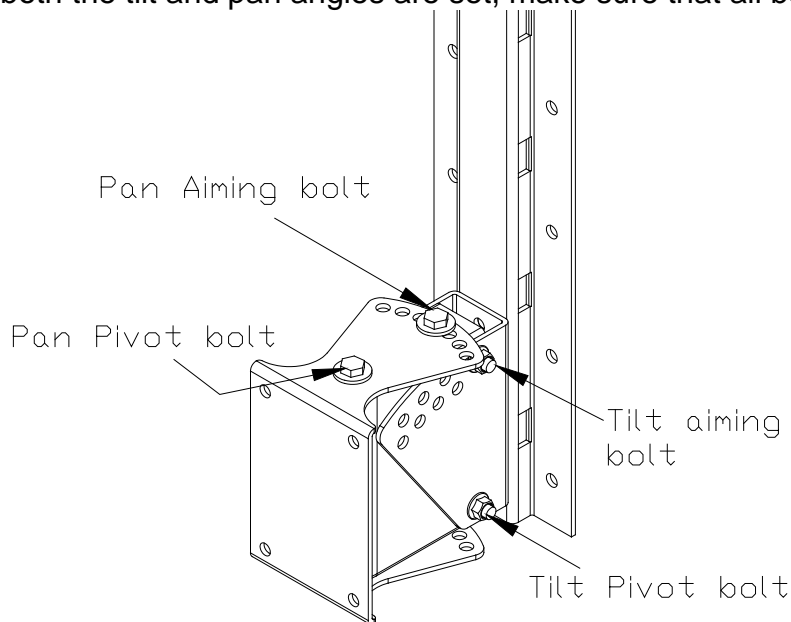
The image above shows the M10 bolts WITHOUT WASHERS used to mount either a 112IM, 212CIM, 212IM, 312CIM or 115TW. The M10 flat washers are used ONLY with the CFA enclosure!

**CAUTION:** DO NOT REMOVE THE PAN PIVOT BOLT (See Figure 2d)

The M10 tilt pivot bolt should be inserted first and secured but not completely tightened using the nylon insert M10 nut supplied. The tilt pivot bolt is shown below in Figure 2d. Then the M10 tilt aiming bolt should be inserted and nylon insert nuts applied. Then the tilt axis bolts should be tightened.

Next the pan angle may be adjusted by removing the M10 pan aiming bolt, but NOT the pan pivot bolt, and setting the desired pan angle and then re inserting the M10 bolt.

Once both the tilt and pan angles are set, make sure that all bolts are tight and secure.



**UNDER NO CIRCUMSTANCES SHOULD THE LOUDSPEAKER DOWNWARD TILT EXCEED 35 DEGREES FROM VERTICAL FOR THE PT-76a. (MAXIMUM 40 DEGREES FOR THE PT-38a)**

## **SECTION 5 LINK ASSEMBLY**

Now the Link must be installed.

**INSTALLING the Pan and Tilt Brackets WITHOUT THE LINK IS NOT ALLOWED!**

The Link (see figure 3) consists of stainless steel quick links, a stainless steel turnbuckle, and several links of stainless steel chain. The use of the chain pieces and

quick links with the turnbuckle is based on the tilt angle of the enclosure. The turnbuckle should always be used.

**DO NOT SUBSTITUTE ANY PART OF THIS LINK ASSEMBLY!**

The Link should be tightened by rotating the turnbuckle until there is tension on the Link assembly. Do not over tighten. The purpose of the Link is to provide support for the main Pole Mount System tilting bracket at the bottom of the assembly.

The back plate sections of the PT-76a and PT-38a have eyebolts attached to them. There are 3 eyebolts on the back plate section of the PT-76a and 2 eyebolts on the back plate section of the PT-38a. Figure 7 illustrates which eyebolt should be used for each down tilt angle.

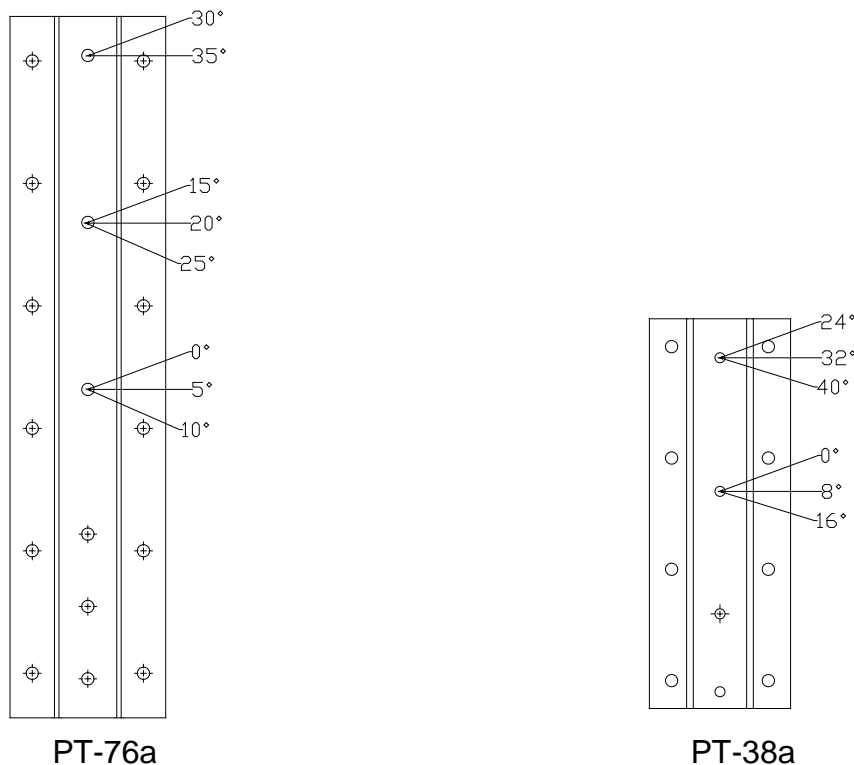


Figure 7

Make sure to use the appropriate combination of Link parts to insure proper connection between the PT bracket assembly and the specific One Systems enclosure. The required combination of Link parts is determined by the down tilt angle of the enclosure.

The assembly may be configured with any combination of turnbuckle, chain link sections and quick link in order to achieve the proper tension on the system, but the turnbuckle must always be used. Figures 8a, 8b, and 8c show a 108IM and PT-38a at

vertical, 24 degrees and 40 degrees using the eyebolt positions shown in Figure 7. Note that Figure 8a and 8b use the same link and turnbuckle combination but different eyebolt locations and the Figure 8c uses chain sections as well as the quick links and the turnbuckle!

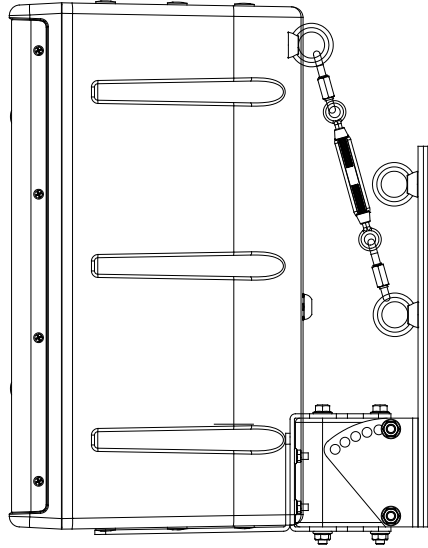


Figure 8a

Figure 8a represents the Link assembly with the enclosure in a vertical orientation and the Link using the lower eyebolt position

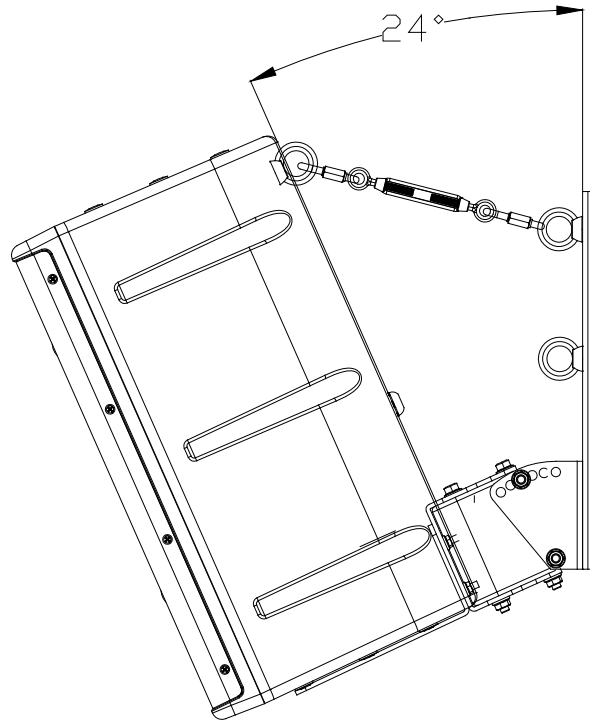


Figure 8b

Figure 8b represents the Link with the enclosure in a 24 degree tilt. The Link is using the top eyebolt and the turnbuckle has been adjusted to provide mild tension.

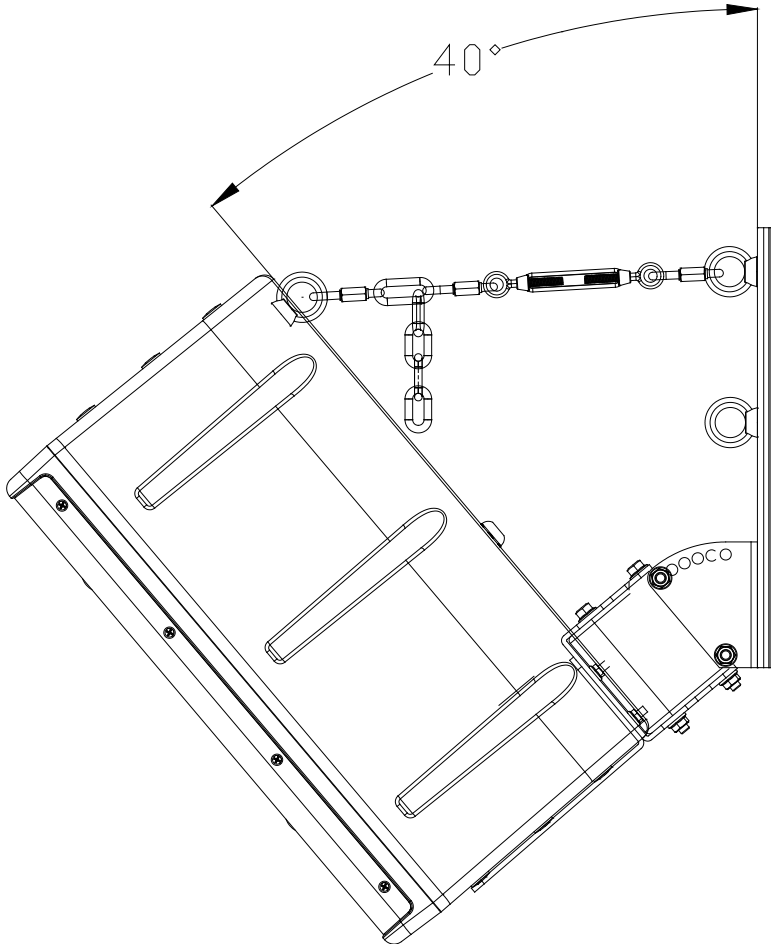


Figure 8c

Figure 8c represents the Link assembly with the enclosure in a 40 degree tilt. The Link assembly uses the top eyebolt and the stainless steel chain has been added to achieve the proper tension on the assembly. Notice the “dropped” chain links in Figure 8c.

**Warning:** If the turnbuckle assembly is turned and the loudspeaker enclosure angle begins to change (if the down tilt angle begins to move toward 0 degrees vertical then the turnbuckle has been OVER TIGHTENED. Turn the turnbuckle until the down tilt angle is set by the M10 thru bolt on the pole bracket but there is still slight tension on the turnbuckle.

Figure 9 below shows a 312CIM mounted to a PT-76a. The down tilt is 35 degrees so the top eyebolt is utilized as per Figure 7.

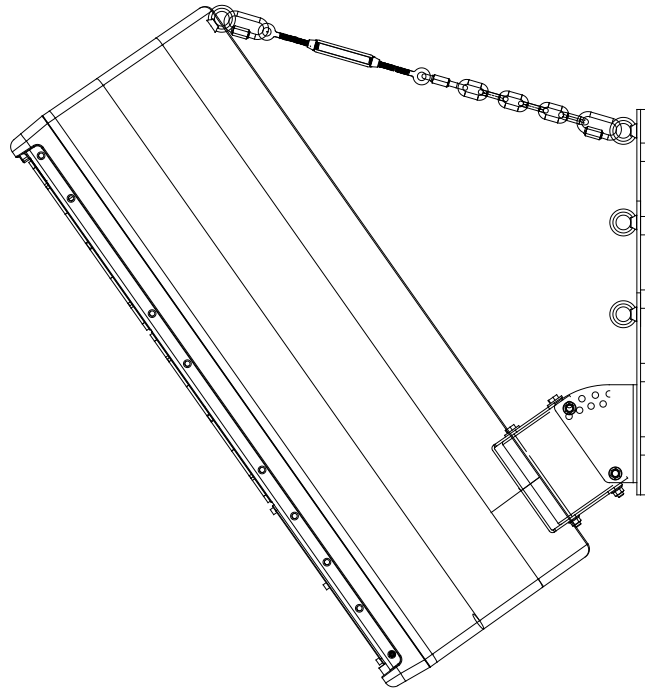


Figure 9

Figure 9 represents the maximum down tilt angle of 35 degrees from vertical. Note that because the down tilt angle is 35 degrees the top eyebolt has been used, again per Figure 7.

Figure 10 is a close up view of the Link assembly. Certain down tilt angles may require a link to be “dropped” from the chain as shown below. The lower quick link is positioned in various chain segments based on the desired degree of down tilt. The turnbuckle should be adjusted, as described in this section

In any position, the turnbuckle must be adjusted to allow the proper amount of tension on the Link. The Link should never pull the loudspeaker up towards vertical. The Link may be configured with or without the chain section and quick link depending on the down tilt angle of the enclosure.

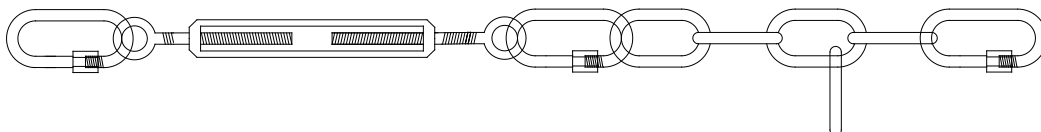


Figure 10



Secondary safety cables are **STRONGLY** recommended and should be secured to a structural point **NOT** associated with the PT bracket or loudspeaker. The Link assembly is **NOT** a secondary safety cable.

## PT-10 Installation

The One Systems PT-10 is designed for use with the 103IM and 106IM family of One Systems products only.

### **DO NOT SUBSTITUTE OTHER LOUDSPEAKER ENCLOSURES!**

The PT-10 has been designed as a low cost yet flexible pan and tilt system and is intended for use with small format, low Q loudspeaker systems. The PT-10 offers 10 degree aiming increments and will provide up to 5 steps within the nominal 100 degree pattern of either the 103IM or the 106IM. Figure 11 represents the PT-10 pan and tilt bracket.

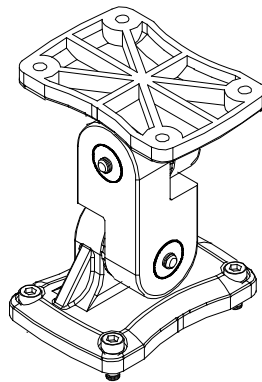


Figure 11

There are two center pieces that may be used for aiming with the PT-10 bracket. Each “center piece” offers aiming resolution of 20 degrees but substitution of the center pieces will yield aiming resolution of 10 degrees.

Figure 12a shows the two center pieces. The 10 degree aiming resolution is achieved by substituting the appropriate center piece to achieve a TOTAL resolution of 10 degrees between the two center pieces. These two center pieces are interchangeable and may be used to set the desired angles.

Note the “rotated clock” section in “Part 2” of Figure 11a below. This section is rotated 10 degrees from the part labeled “Part 1” and is what allows the aiming increments to be adjusted in 10 degrees steps.

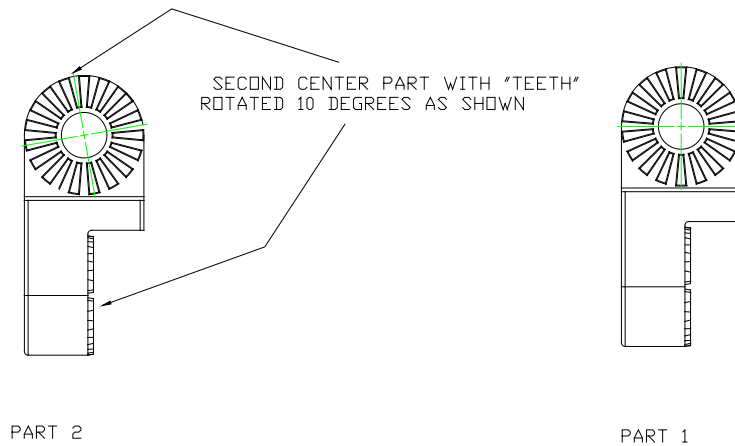


FIGURE 11a

Figure 12 shows a One Systems 103IM mounted to a PT10. There are 4 M5 stainless steel bolts that are supplied with the PT-10 for mounting to either the 103IM or the 106IM. Once the PT-10 is mounted to the specific loudspeaker enclosure the two stainless steel bolts on the center piece of the PT-10 may be loosened to allow the bracket to be rotated in both the “pan” and “tilt” axis. Once proper loudspeaker aiming is achieved both of these bolts must be securely fastened to insure the assembly will not move.

**NOTE:** It is strongly recommended that a “temporary” thread locker be used to secure the two M6 bolts that set both the pan and the tilt angles of the PT-10.

**NOTE:** It is necessary to fit an additional/secondary safety assembly between the loudspeaker enclosure and the mounting surface. This safety assembly is not supplied by One Systems. The safety assembly must conform to local and national codes!

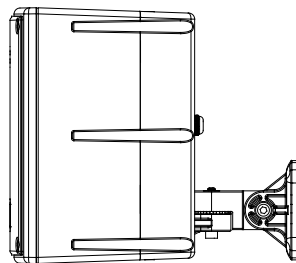


Figure 12

Secondary safety cables **MUST** be used with the PT-10 and should be secured to a structural point **NOT** associated with the PT bracket or loudspeaker. This secondary safety should be connected between the loudspeaker and the mounting surface!

## PT-30 Installation

The PT-30 is available in two versions. The “standard” version is made with 304 grade stainless steel. The PT-30 is also available in a “Marine grade” version that uses 316 grade stainless steel. The PT-30 was designed for use on small diameter round and square/rectangular poles.

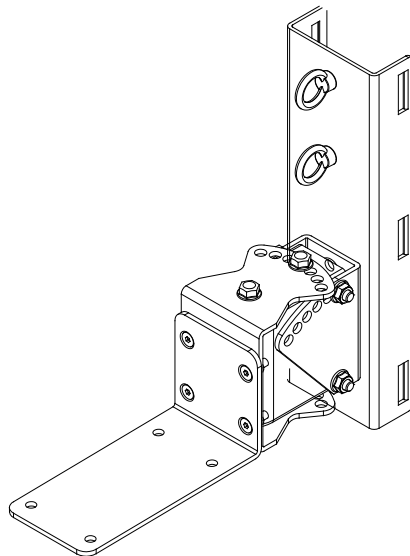
**See important note on page 3 regarding mounting in “Marine” environments!**

For square/rectangular poles the minimum flat dimension must be 3.75 inches (95.25mm) and for round poles the minimum required diameter is 4 inches (101.6mm). The PT-30 was designed for use with the 108IM and its transformer variants and for the 208CIM and its transformer variants only. **NO SUBSTITUTIONS ARE ALLOWED!**

**NOTE: One Systems does not imply suitability of specific pole diameters. Each pole must be verified by the pole manufacturer or others as to the structural suitability of the pole for use with the total load of the PT-30, the loudspeaker, and all required safety factors.**

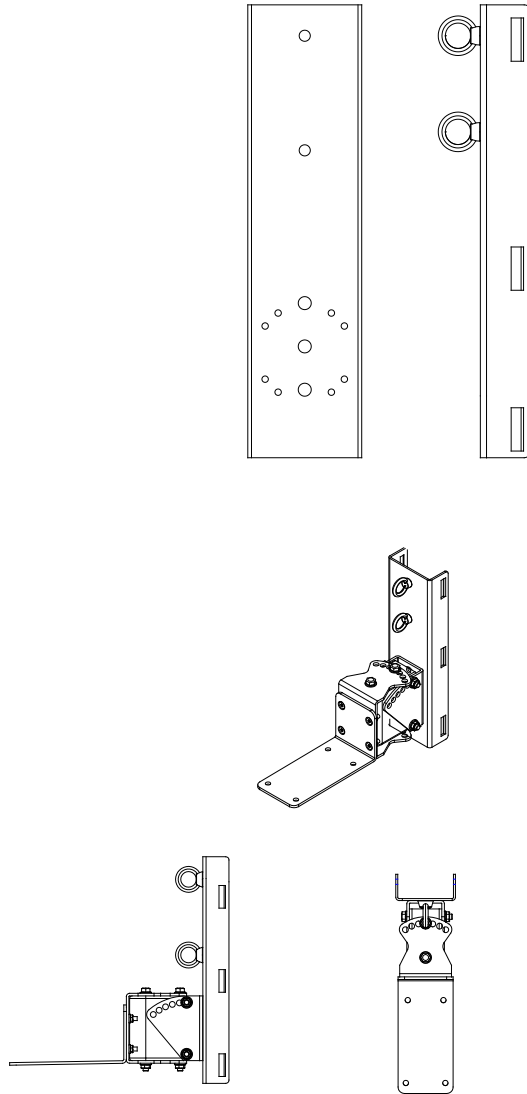
**THE PT-30 is designed for pole mounting ONLY! DO NOT wall mount the PT-30!**

The PT-30 is shown below. The PT-30 allows a down tilt of 40 degrees in 8 degree increments.



## PT-30

The PT-30 consists of three parts: the pole bracket, the loudspeaker bracket, and the Link. The PT-30 pole bracket is shown below.



Views of the PT-30

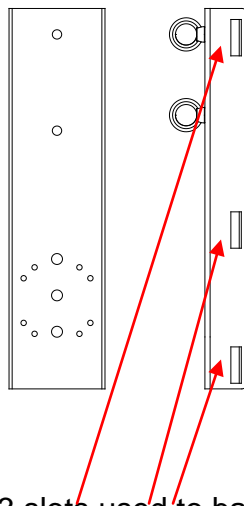
**NOTE:** There are three M8 forged shoulder eyebolts supplied with the PT-30. Make sure that two of them are mounted to the PT-30 back plate as shown above BEFORE attempting to mount the PT-30 assembly to a pole structure!

**NOTE:** Instructions for mounting the Band-It bands are supplied by Band-It

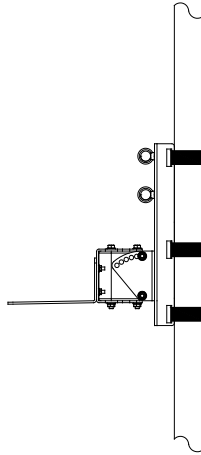
The PT-30 has three slots for mounting the back bracket assembly on a pole. ALL THREE slots MUST be used. Each slot MUST be DOUBLE WRAPPED (two INDEPENDENT bands per slot!) using the specified Band-It straps ONLY! DO NOT substitute any other straps. IT IS NECESSARY TO USE ALL MOUNTING SLOTS TO INSURE A SAFE AND SECURE MATE TO THE ASSOCIATED SURFACE!

IT IS CRITICAL THAT THE MATING SURFACE (Pole) BE CAPABLE OF SUPPORTING THE LOAD OF THE PT-30 BRACKET, THE LOUDSPEAKER AND ALL SUSPENSION HARDWARE, AS WELL AS PROVIDING THE PROPER SAFETY FACTORS. DO NOT ATTEMPT TO SUSPEND THE BRACKET AND LOUDSPEAKER UNTIL THE STRUCTURAL CHARACTERISTICS OF THE MATING SURFACE (Pole) ARE UNDERSTOOD. DO NOT INSTALL THE PT BRACKET AND LOUDSPEAKER IF THE MATING SURFACE (Pole) IS NOT CAPABLE OF SUPPORTING THE ENTIRE ASSEMBLY WEIGHT, AS WELL AS PROVIDING THE REQUIRED SAFETY FACTORS!

**IMPORTANT:** There are 3 slots indicated by the red arrows in the image below. Each of the 3 slots must be utilized to insure a secure mount to a pole. ALL 3 slots must use double wrapped bands (Two independent bands wrapped in each slot)! The image below shows the PT-30 mount to a round pole. As shown, ALL three band slots must be used and all locations MUST be double wrapped (two independent band assemblies per slot!)



The red arrows indicate the 3 slots used to band the PT-30 to a pole structure



The PT-30 showing ALL three band locations used

Mount the PT-30 bracket assembly to the pole at the desired height on the pole. The bracket is mounted to the pole using BAND-IT stainless steel bands. DO NOT SUSTITUTE bands of other material or other widths! There are 3 locations for the PT-30 and ALL 3 slots MUST BE USED.

It is REQUIRED that ALL bands be DOUBLE wrapped (Two independent bands per slot!). Double wrapping will insure a strong and secure mounting of the bracket to the pole. The selection of stainless steel banding materials is based on the intended application. The 304 grade bands and buckles should be used when the 304 grade PT-30 is used. The bands should be sourced from BAND-IT ONLY and should be as follows:

- BAND-IT # C206R9 stainless steel bands
- BAND-IT # C25699 buckles
- BAND-IT # C00169 tensioning tool

The stainless steel band is Type 201SS 0.030 inches (0.762mm) thick and 0.750 inches (19mm) wide.

**IF the “Marine grade” 316 stainless steel version of the PT-30 is used then the bands are as follows.**

- BAND-IT # C406R9 stainless steel bands (316 stainless steel)
- BAND-IT # C45699 buckles (316 stainless steel)
- BAND-IT # C00169 tensioning tool

The stainless steel band is 316 grade 0.030 inches thick by 0.750 inches wide

**WARNING:** Do NOT substitute banding materials or banding dimensions.

Installation instructions from BAND-IT should be followed exactly. Operating instructions are supplied with the tensioning tool. (All BAND-IT parts and tools purchased separately. These parts and tools are not supplied by ONE SYSTEMS)

The stainless steel banding material, buckles and tensioning tools are available from the following locations (or through distributors recommended by these locations):

BAND-IT IDEX, Inc.  
4799 Dahlia St.  
Denver Colorado 80216  
USA  
1-800-525-0758

FELIX PONCE  
Calle Ignacio Zaragonza No. 8  
Colonia Ahuehuetes Atizapan 52953  
Edo. de Mexico  
(52) 555825 8502

BAND-IT Company Limited  
Speedwell Industrial Estate  
Stavely, Nr. Chesterfield  
Derbyshire, S43 3PF England  
Home Sales (44) 1246-479479  
Export Sales (44) 1246 479480

BAND-IT Clamps (ASIA) Pte. Ltd.  
11 Second Chin Bee Road  
Singapore 618777  
65-62658853

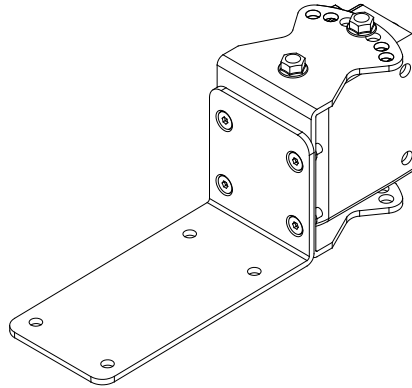
BAND-IT Shanghai Sales Office  
207 room  
Wanbao International Business Centre  
660# Xinhua Road  
Shanghai, China 200052  
021-62826348-308

Now the M8 forged shoulder “eye” bolt should be installed in the top rear of the loudspeaker enclosure. Make sure that that eyebolt is seated on the enclosure surface.

Note that the desired pan and tilt angles may be set either before or after the loudspeaker is mounted to the PT-30 assembly. However, the pan and tilt angle

adjustments must be double checked and tightened after the loudspeaker has been mounted.

Next, the loudspeaker should be mounted to the PT-30 using the supplied M8 stainless steel bolts and internal tooth lock washers. **DO NOT SUBSTITUE ANY PARTS.**

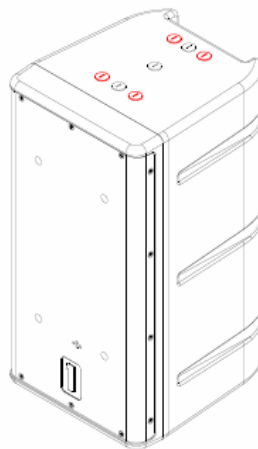


PT-30 speaker mount bracket section

The PT-30 mounts to the top or bottom of the 108IM or 208CIM as shown in the figure below using the M8 locations. The mounting locations are highlighted in red.

**Note:** Remove all 7 M8 cover plugs before installing the loudspeaker on the PT-30 bracket plate!

***DO NOT SUBSTITUTE MOUNTING LOCATIONS!***



PT-30 Mounting locations (top or bottom) for 108IM/208CIM



There are mounting locations on both the top and bottom of the 108IM/208CIM and either the top or bottom may be used. Then enclosure may be oriented with the high frequency section either at the top or bottom of the configuration.

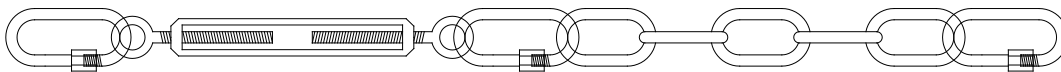
**USE EXTREME CAUTION!** The loudspeaker is heavy and it is likely that the desired mounting location is high in the air. This process should never be attempted by a single person.

**TWO PEOPLE ARE REQUIRED TO MOUNT THE LOUDSPEAKER ENCLOSURE TO THE POLE AND PT brackets.** Safety harnesses should always be worn when working from an elevated platform.

Once both the tilt and pan angles are set, make sure that all bolts are tight and secure.

**UNDER NO CIRCUMSTANCES SHOULD THE LOUDSPEAKER DOWN TILT EXCEED 40 DEGREES FROM VERTICAL FOR THE PT-30!**

### LINK ASSEMBLY



Now the Link must be installed.

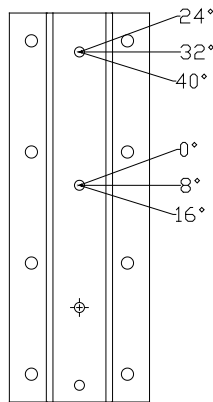
### **INSTALLING the Pan and Tilt Bracket WITHOUT THE LINK IS NOT ALLOWED!**

The Link consists of stainless steel quick links, a stainless steel turnbuckle, and several links of stainless steel chain. The use of the chain pieces and quick links with the turnbuckle is based on the tilt angle of the enclosure. The turnbuckle should always be used.

### **DO NOT SUBSTITUTE ANY PART OF THIS LINK ASSEMBLY!**

The Link should be tightened by rotating the turnbuckle until there is tension on the Link assembly. Do not over tighten. The purpose of the Link is to provide support for the main Pole Mount System tilting bracket at the bottom of the assembly.

The back plate section of the PT-30 has two eyebolts attached to it. The figure below illustrates the proper eye bolt to use for each down tilt angle of the bracket.



### PT-30 EYE BOLT AIMING LOCATIONS

Make sure to use the appropriate combination of Link parts to insure proper connection between the Pole Mount System and the specific One Systems enclosure. The required combination of Link parts is determined by the down tilt angle of the enclosure.

The assembly may be configured with any combination of turnbuckle, chain link sections and quick link in order to achieve the proper tension on the system, but the turnbuckle must always be used. The figures below show a 108IM or 208CIM and PT-30 at vertical, 24 degrees and 40 degrees using the eyebolt positions shown in the “PT-30 EYE BOLT AIMING LOCATIONS” image. Note that Figure 8a and 8b use the same link and turnbuckle combination but different eyebolt locations and the Figure 8c uses chain sections as well as the quick links and the turnbuckle.

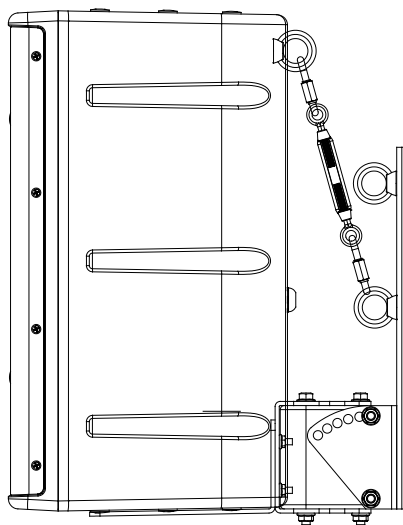


Figure 8a

This image represents the Link assembly with the enclosure in a vertical orientation and the Link using the lower eyebolt position

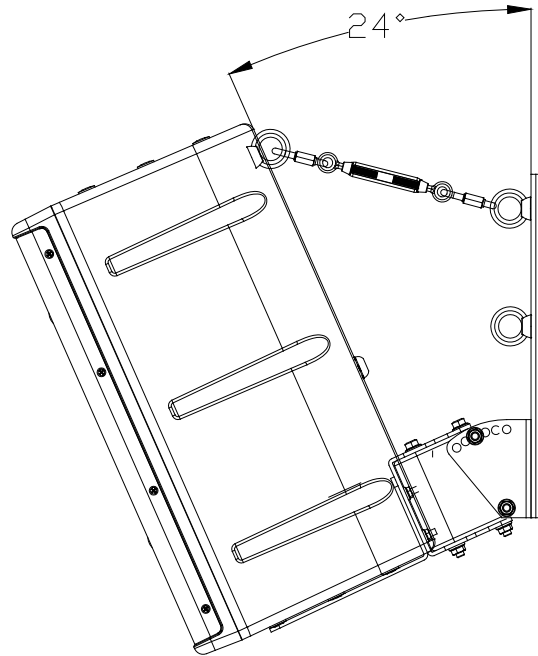


Figure 8b

Figure 8b represents the Link with the enclosure in a 24 degree tilt. The Link is using the top eyebolt and the turnbuckle has been adjusted to provide mild tension.

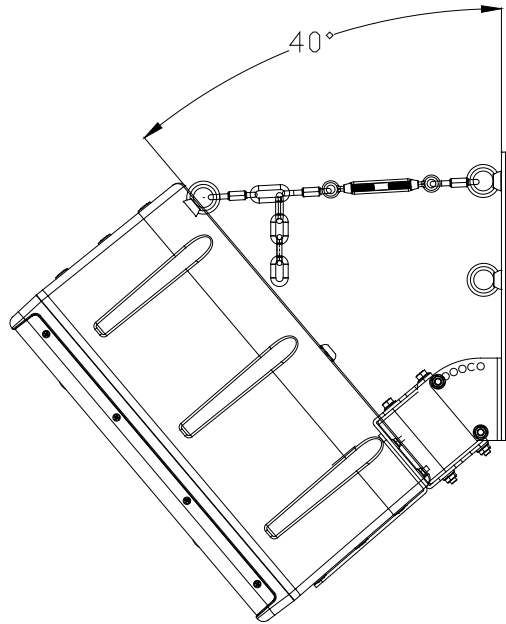


Figure 8c

Figure 8c represents the Link assembly with the enclosure in a 40 degree tilt. The Link assembly uses the top eyebolt and the stainless steel chain has been added to achieve the proper tension on the assembly. Notice the “dropped” chain links in Figure 8c.

**Warning:** If the turnbuckle assembly is turned and the loudspeaker enclosure angle begins to change (if the down tilt angle begins to move toward 0 degrees vertical then the turnbuckle has been OVER TIGHTENED. Turn the turnbuckle until the down tilt angle is set by the M10 thru bolt on the pole bracket and there is slight tension on the Link assembly.

Figure 10 is a close up view of the Link assembly. Certain down tilt angles may require a link to be “dropped” from the chain as shown below. The lower quick link is positioned in various chain segments based on the desired degree of down tilt. The turnbuckle should be adjusted, as described in this section

In any position, the turnbuckle must be adjusted to allow the proper amount of tension on the Link. The Link should never pull the loudspeaker up towards vertical. The Link may be configured with or without the chain section and quick link depending on the down tilt angle of the enclosure.

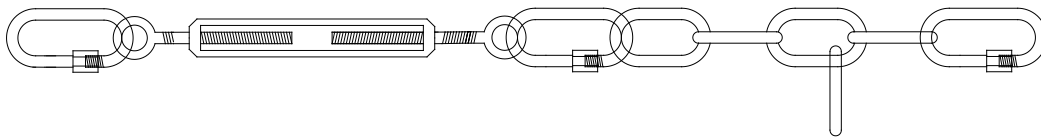


Figure 10

Secondary safety cables are **STRONGLY** recommended and should be secured to a structural point **NOT** associated with the PT bracket or loudspeaker. The Link assembly is **NOT** a secondary safety!

# APPENDIX 1

## (Projected Area Values)

The values below should be supplied to the specific pole manufacturer for safety calculations. These values were determined by adding the projected areas of the high frequency horns, the woofer cones and ports to the cross sectional area of the front of each enclosure listed below. Each enclosure will present a different EPA based on wind direction. The values listed below are for wind loads directly into the front of the enclosure and represent maximum values.

103IM .....	67 in <sup>2</sup> (43,000mm <sup>2</sup> )
106IM.....	136 in <sup>2</sup> (88,000mm <sup>2</sup> )
108IM.....	250 in <sup>2</sup> (161,290mm <sup>2</sup> ) (60x40 HF horn)
208CIM.....	207 in <sup>2</sup> (133,550mm <sup>2</sup> )
108CIM.....	169.4in <sup>2</sup> (109,278mm <sup>2</sup> )
112IM .....	600 in <sup>2</sup> (387,096 mm <sup>2</sup> ) (60x40 HF horn)
212CIM.....	600 in <sup>2</sup> (387,096mm <sup>2</sup> )
212IM .....	804 in <sup>2</sup> (550,000 mm <sup>2</sup> )
312CIM.....	804 in <sup>2</sup> (550,000mm <sup>2</sup> )
Cross Field Array.....	2,708in <sup>2</sup> (1,750,000mm <sup>2</sup> )
CFA-2.....	855 in <sup>2</sup> (552,100mm <sup>2</sup> )
118IM Sub.....	531 in <sup>2</sup> (342,516mm <sup>2</sup> )

**The products referenced in this manual are in conformity with the following standards or other normative documents: Machinery Directive 2006/42/EC**