MCL STORAGE PRODUCTS

The Reliable Name in Compact Storage

MIZER®

INSTALLATION INSTRUCTIONS

IMPORTANT: Please read this *entire* installation manual and review *all* drawings before starting the installation.

Material Handling USA

800-326-4403

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Tools Required:

- Allen Key Set
- ¾” Crescent wrench
- 11/16” Crescent wrench
- 5/8” Crescent wrench
- ½” Crescent wrench
- Rubber Mallets
- Power Drills ○ Robertson bit (size 2)
- Tape Measure
- Laser level (or any tool that can accurately measure floor height for levelling the track)
- Grout Mixer **(FOR GROUT SYSTEMS ONLY)**
- Trowels **(FOR GROUT SYSTEMS ONLY)**
- Spare 10 Gallon bucket (**FOR GROUT SYSTEMS ONLY)**
- **TEK SCREWS FOR ANCHORING SHELVING TO MOBILE CARRIAGES (NOT SUPPLIED)**

Helpful Tools (not required):

- Shop Vacuum
- Ladders (When installing shelving 88” or higher)
- Crow/Pry bars
- Broom

Visual Reference for a System with End Panels

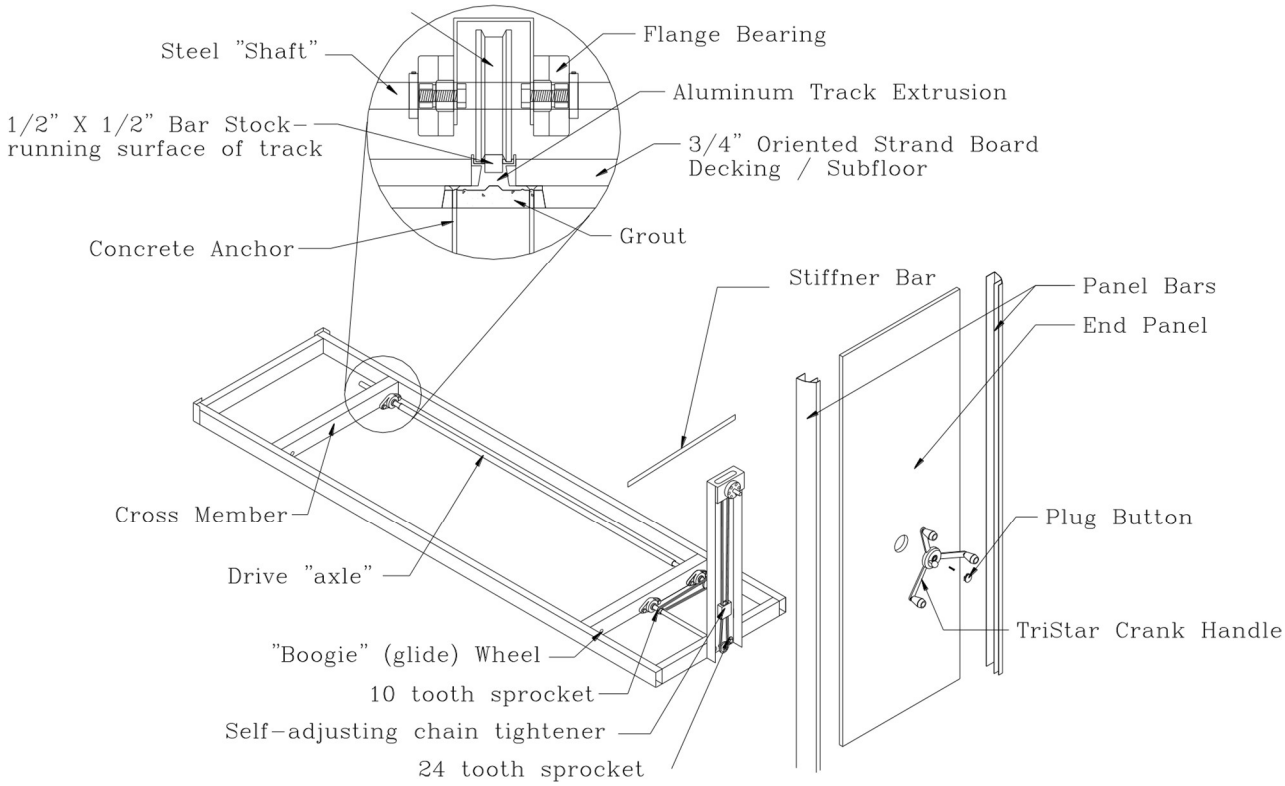


Figure 1: Typical Carriage and Mechanical Assist with End Panel

Visual Reference for a System with Steel Casings

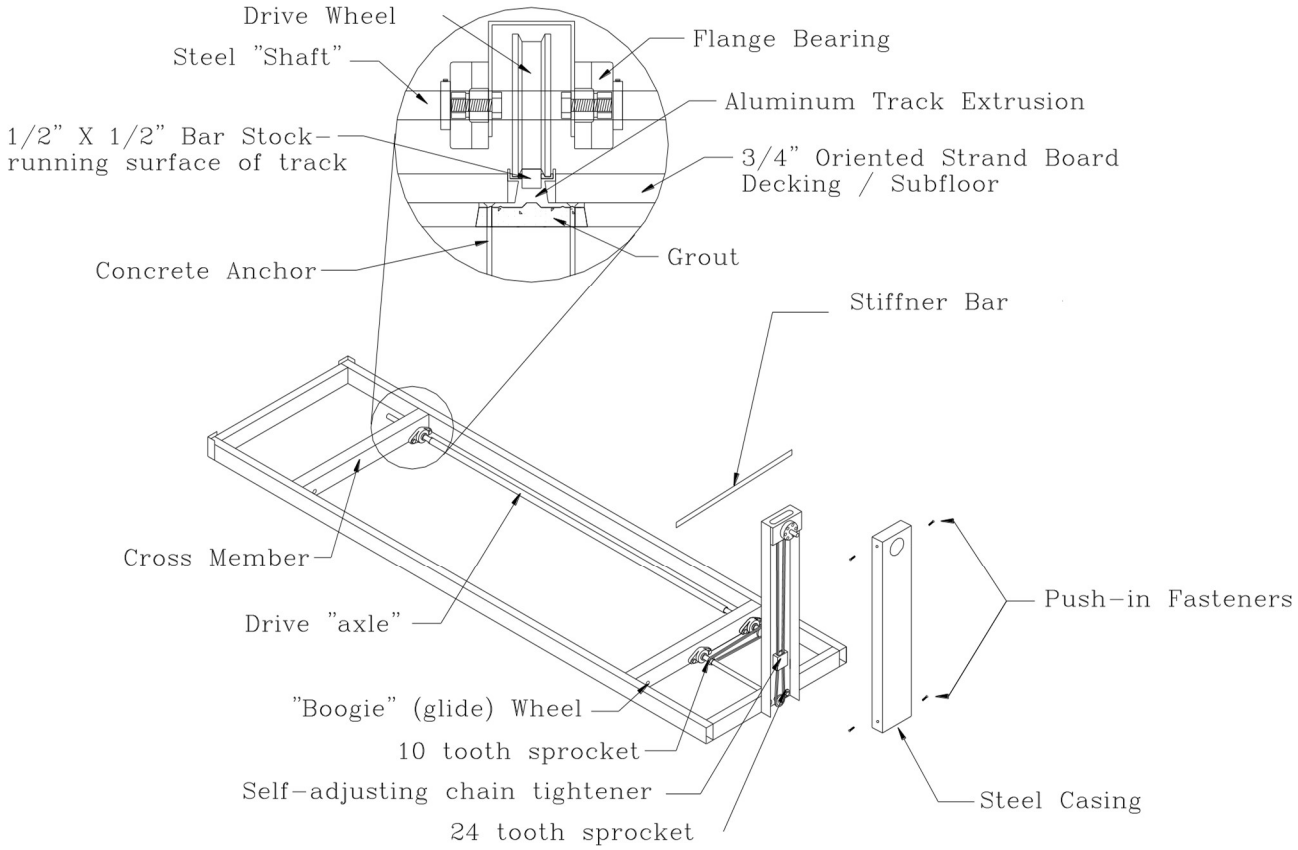


Figure 2: Typical Carriage and Mechanical Assist with Casing

Types of Track

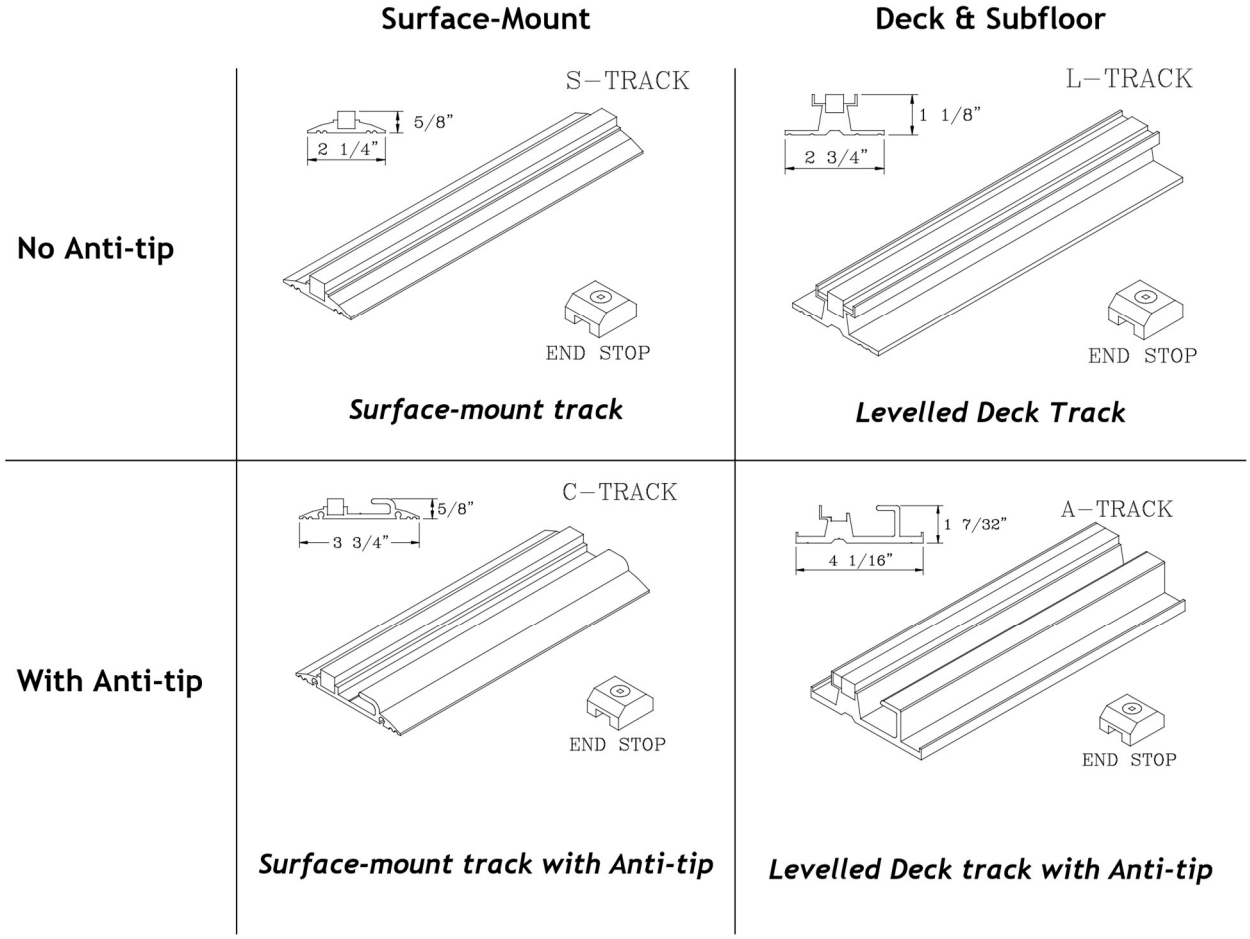


Figure 3: Types of Track Available

Mizer Surface Track System Installation:

When installing a Mizer Movable Carriage System the installer should make use of the carriage production drawings supplied. Cross-member measurements are always shown center-to-center (Figure 9). The exact center of the wheel runs on the exact center of the track and therefore coincides exactly with the track locations of the finished system.

Remember, the floor needs to be reasonably level if you want to use STRACK- you can't just use it anywhere! The salesperson should always check the floor with a level before they quote STRACK- the floor needs to be within 3/4" of dead level, or the tracks will be shimmed too high to work as "low profile".

Pre-Measure: If the system won't fit, it's better to know before you start. *Don't forget about ceiling clearance and that track shimming adds to overall height).*

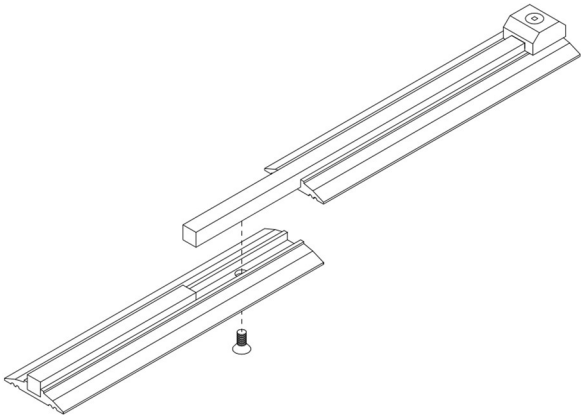


Figure 4: Lap Joint Assembly

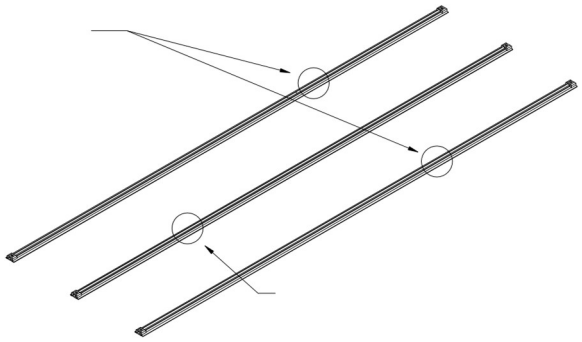


Figure 5: Surface tracks must be shimmed level using the 1/16" and 1/8" shim strips provided, eliminating carriage drift

Track Assembly: Arrange track sections to correct overall length. Assemble track sections together at lap joints and fasten with countersunk-head bolt (Figure 4). Stagger track joints where possible (Figure 5). ***Do not remove backing from twosided tape until later***. When installing anti-tip tracks, ensure that the channels are facing the correct direction (Figure 6 and 7).

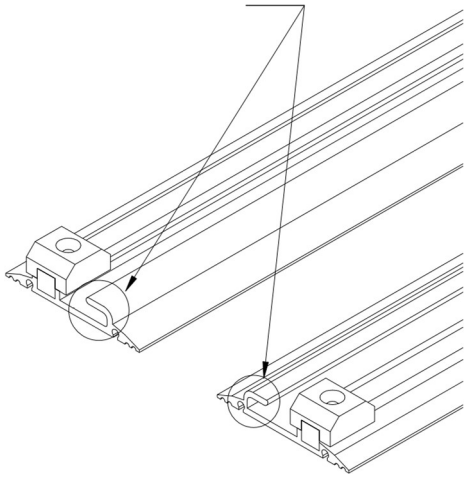


Figure 6: Anti-tip Channels must face proper direction

Track Layout: Position the tracks and check for approximate squareness and set spacing between tracks from the drawing and/or carriages. Begin with the rear track, placing it parallel to the rear wall. In most cases, the distance from the wall to the track centre will equal the distance from the centre point of the wheel to the rear edge of the carriage frame plus 2". This provides approximately two inches of space between the mobile units and the wall.

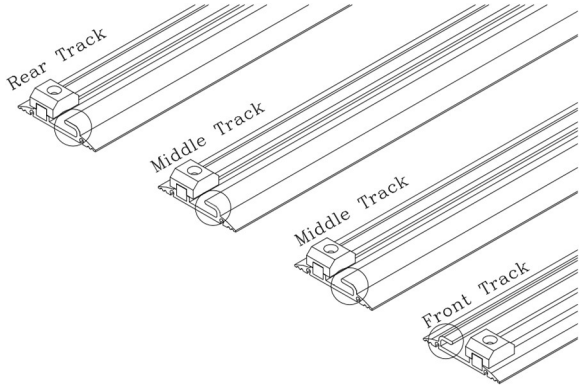
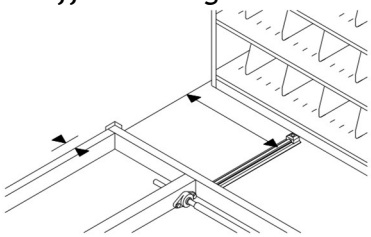


Figure 7: Ensure middle anti-tip tracks match rear track

Consult your shop drawings or measure the carriage to be sure (Figure 9). Tracks for surface mount systems are sized to begin against the face of the static ranges, usually located at each end of the system.

Shim Track: Check that the floor is reasonably level - within 1/4" over 10 ft. (a laser level is recommended). ***Start with the track that is at the highest point of the floor***. Using a level, ensure that the correct combination of shim thickness and lengths are arranged to level the track, then remove backing from tape and *adhere shims to the track only, not the floor*. In the same manner, shim each of the remaining tracks so that they are level to this first track. *Remember that shimming can affect ceiling clearance.*



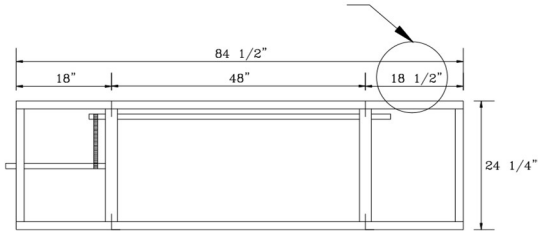


Figure 8: Find rear cantilever dimensions on production drawing and add 2" for clearance - usually 20 1/2"

Fasten Rear Track: Now remove tape backing and adhere only the rear track to the floor. Ensure proper direction if there is an anti-tip channel.

Final Track Aligning: With all tracks shimmed level to the highest track, precisely position the front track by measuring to rear track (skipping any intermediate tracks for now). Then, measure corner-to-corner to verify system is square. Slide track along its length to adjust if necessary. Ensure square, accurately positioned, and proper direction if there is an anti-tip channel. Adhere front track to the floor. If t here are middle tracks in the system, **measure spacing from the rear track,** align the ends with those of the front and rear tracks, and then

adhere it to the floor. Mount one of the carriages on the tracks (see below for assembly instructions). Roll the carriage down the length of the tracks to ensure all tracks are spaced properly and that the carriage rolls freely. Remove carriage.

Ramp Installation

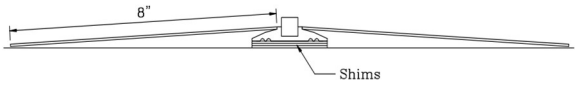


Figure 9: R-LP Low Profile Ramp

Ramp is factory cut to length to ensure fast installation. Lay the ramp into place along each side of the track. Using the twist drills supplied and the pre-drilled holes in the ramp as templates, drill $^{1}/_{8}$" pilot holes into the aluminum track extrusion. #2 Robertson (square socket) truss head screws are supplied to secure ramp to each side of the track. Use a hand screwdriver to drive these screws until snug.

Levelled Deck System Installation:

When installing a Mizer system, the installer should make use of the carriage production drawings supplied. Crossmember measurements are always shown center-to-center (the exact center of the wheel runs on the exact center of the track), and therefore coincides exactly with the track locations of the finished system.

- **Pre-Measure:** If the system won't fit, it's better to know before it's partly installed. (don't forget the ceiling clearance).

- **Track Assembly:** Lay the tracks out on the floor as per shop sketch. Join track end-to-end and fasten at lap joints (as in Fig.4). Stagger joints where possible (as in Fig. 5).

When installing a system where L-TRACK and A-TRACK are used in combination, install the A-TRACK first! ('A' is higher profile) then level the L-TRACK to match. Ensure that the anti-tip channels are facing the correct direction (Fig. 6 & 7).

- **Track Layout:** Position the tracks and check for approximate squareness and set spacing between tracks from the drawing and/or carriages. Begin with the rear track, placing it parallel to the rear wall. In most cases, the distance from the wall to the track centre will equal the distance from the centre point of the wheel to the rear edge of the carriage frame plus 2". This provides approximately two inches of space between the mobile units and the wall. Consult your shop drawings or measure the carriage to be sure (Fig. 8). Levelled deck systems are designed to have the static carriages rest on top of the track. Lay out the remainder of the tracks according to the shop drawings, and position as accurately as possible. Measure corner-to-corner to ensure the system is roughly square, and adjust as necessary.

- **Levelling System:** Using a transit or laser level, locate the highest point within the installation area and begin levelling the system from there. Turn the levelling screws provided into the threaded holes along the side of the track, adjusting the height so the track is minimum ¼" above the floor at the closest point. Adjust the rest of this track until it is level throughout. Level all remaining tracks to the first track. Each track must be height adjusted till it is level to eliminate carriage/shelving tilt.(Fig. 10-1)

- **Fine Alignment:** Align the rear track in its exact location and check that it is straight. Drill through the track anchor holes (next to the levelling bolts) and into the floor at each end of the track and at approximate 15' intervals along track. Install a drive anchor in each hole. Align the front track in its exact position by measuring to rear track (skipping any intermediate tracks for now). Then, measure corner-to-corner to verify system is square. Slide track along its length to adjust if necessary. When square, accurately positioned, and level, anchor in the same manner as above. Line up the ends of any intermediate tracks, sliding along their lengths to adjust as necessary. Then follow the same procedure as above. Where possible, measure directly to the rear track.

Fine Alignment Notes: Periodic re-checks of level are recommended during the entire process of Fine Alignment - tracks tend to move and become un-level during anchor drilling.

Installer may choose to install only the rear track as above, then put a carriage on the tracks and roll it to ensure tracks are properly aligned.

- **Anchor:** When all tracks are aligned and level, install all remaining track anchors as above, drilling and hammering an anchor in every available spot remaining in the system.(Fig. 10-2)

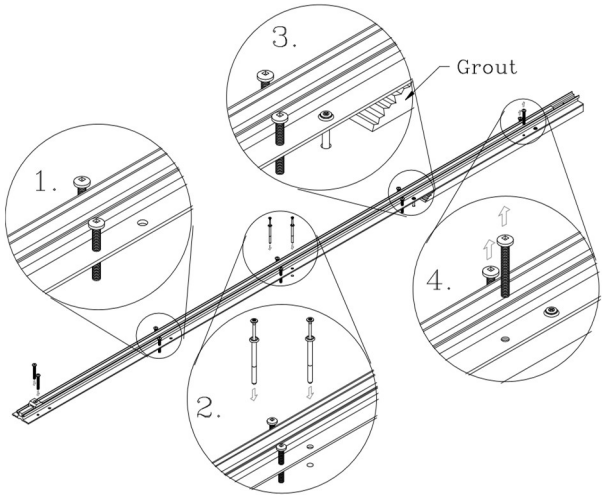


Figure 10: Installing levelled and grouted track

1. *Find the high point on the floor and Install levelling screws to level the track.*
2. *Hammer drill into the floor and install anchors.*
3. *Mix grout and fill completely under track.*
4. *Back out levelling screws.*

- **Grouting of Track:** Mix grout with water in a plastic 5 gal. pail. Use small batches, as it sets quickly. When it has thickened sufficiently, pour a quantity on the floor beside the track. Use a trowel to force the grout completely

into the space under the track and through to the other side, continuing down the full length of the track. Scrape off any excess. Continue with new batches until all tracks have been completely grouted. Then remove all levelling screws to make way for the deck to be installed. (Fig. 10-3, 4)

Note: Experience with Mizer grouting will result in knowledge of what to expect when using it and will improve the speed of subsequent installations.

- **Installing Deck:** The deck rests on the bottom extrusion flange of the track, with the middle of the deck sheet supported by levelling screws (Allen style heads) and T-nuts. Lay out the pre-cut ¾" tongue-and-groove OSB sections of decking as per the deck drawing. 5/16" holes for levelling screws (Fig. 11-1,2) and floor anchor (Fig. 11-3,4) are drilled in pairs, about 2" apart, and should be on a grid that places them no further than 16" from the next level/anchor set. Drive a T-Nut into each levelling screw hole from the bottom and install a levelling screw. Adjust levelling screws so deck is both level and solid. The hole beside every T-nut must then be countersunk on the top side of the deck to provide space for the head of the drive anchor when it is inserted. Use this same hole as a template to drill into the concrete floor for the drive anchor. Insert a drive anchor through this hole in the OSB and hammer it into the concrete to ensure a firm deck. Ensure the drive anchor head is recessed into the countersunk area so that it doesn't interfere with the final floor covering. After installation of the deck is completed, adhere the foam tape inserts into the grooves of the track on either side of the steel bar stock.

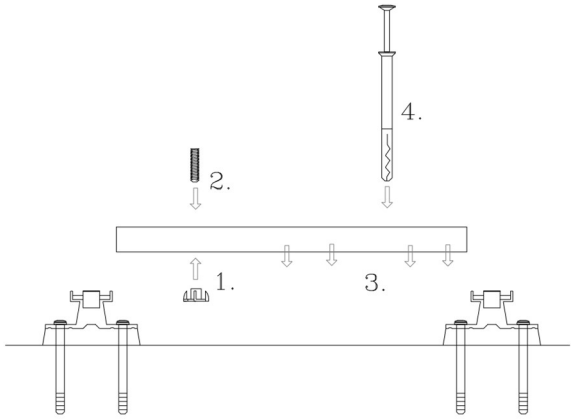


Figure 11: Installing Deck

- **Installing Ramp:** Ramp is made up of ¾" tongue and groove OSB in 15" X 48" panels. The ramp rests on the bottom extrusion flange of the first track and is anchored to the concrete through the OSB using #6 X 35 mm Ramp Anchors. A stainless steel toe is attached to the OSB using ¾" wood screws. (Fig. 12)

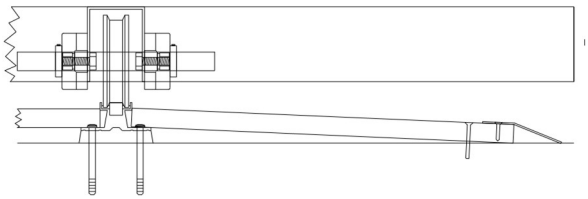


Figure 12: R-CD Combination Deck Ramp

Carriage Assembly

Carriages longer than 10 feet in length are shipped in sections and will need to be assembled.

- **Axle Shafts:** Lay the carriage sections together as shown in the shop drawings and install the pipe axles, bolting them to the stub shafts protruding through the bearing blocks. Use the 5/16" x 1½" bolts with lock washers and nuts provided. Be sure to securely tighten. (Fig. 14). NOTE: Pipe/axles must be installed before carriage sections are joined.

- **Join Carriages:** Bolt the carriages together on each side with 3 bolts ½" x ¾", lock washers, and nuts provided. Be sure to securely tighten.

- **Bumpers:** Bumpers are usually placed on the face of the carriage, centered in line with the cross-member. Mounting holes are pre-drilled in most applications.

- **Shelving:** Place carriages onto the tracks and begin installing the shelving.

NOTE: Ensure that the shelving is securely attached using fasteners approved by the shelving supplier. When single-faced back-to-back shelving is installed on carriages, it must be secured together at the top of each adjoining pair of posts or uprights using fasteners supplied or approved by the shelving supplier.

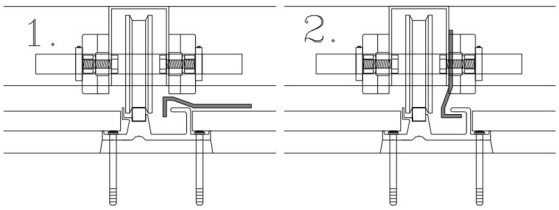


Figure 13: Cross-section of E-BRK installation

1. Lay the toe of the E-BRK "skate blade" into the anti-tip channel
2. Tilt bracket 90 degrees back against the cross member so holes are aligned and bolt using 3/8" hardware provided.

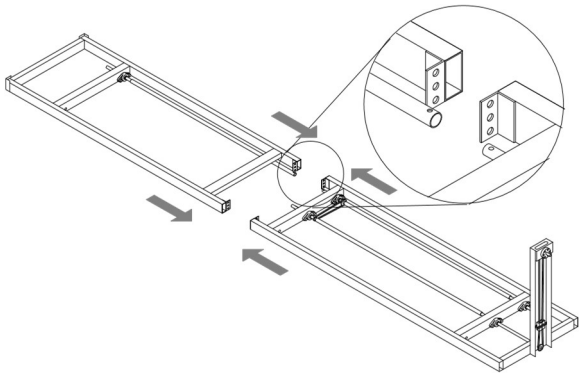


Figure 14

Hardware to connect carriages:
6 Lock Nut Washers: ½ Regular
6 Nuts: ½ Hex Nut Zinc 6 Bolts:
½ x ¾ NC GR5 C/S

Hardware to connect drive axels:
1 Bolt: 5/16 x 1 ½ NCGR8 C/S
1 Lock Nut: 5/16-18 NC Lock Nut
2 Washers: 5/16 Flat Washer

Mizer Anti-Tip & Seismic Systems:

An Anti-Tip assembly is required when the height of the shelving exceeds four times the depth of the shelving (4 to 1 ratio). Seismic brackets are used in a similar manner to prevent carriages from tipping over in an earthquake. Two styles of AntiTips are available

E-BRK Seismic Anti-tip (steel bracket) or N-BRK Anti-tip (aluminum bracket)

These floor type Anti-Tips rely on the "A" or "C" track being first levelled, then anchored to the floor. Concrete anchors (supplied) are used when securing to a concrete surface or on a wooden floor; use 3-1/2" long #8 wood screws (not supplied) driven through the floor and into the floor joists.

The "A or C" tracks with carriage mounted anti-tip brackets (E-BRK or N-BRK) are mounted one per Anti-Tip track per carriage. These brackets are bolted directly onto the cross members in the holes predrilled from the factory.

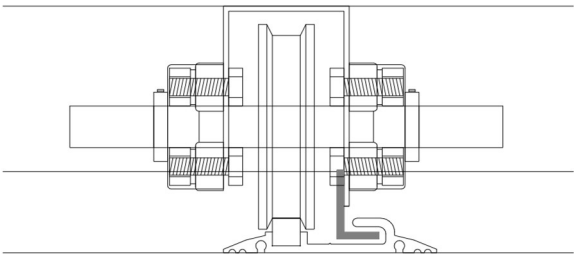
Properly levelling the tracks is crucial for these brackets to be installed without drag, as the channel in the track extrusion does not leave much room for error.

E-BRK (steel bracket) is bolted onto the four holes located near the center of each cross member. After the carriage has been placed on the track, tip the E-BRK at an angle and slide it into the anti-tip channel to the right or left in the aluminum extrusion. Once the E-BRK is lined up with the appropriate holes in the center of the cross member, turn back to 90 degrees and bolt to cross member with hardware supplied.

(Fig. 13-1, 2)

Note: Be sure NOT to over-tighten the bolt so the cross member does not get pinched together.

N-BRK's are 1 1/2" X 3/4" aluminum angle brackets used for narrow carriages between 12" and 18" wide. These brackets ship installed from the factory. The aluminum angle is drilled and attached to the two tabs on the ends of the cross members. Remove the bracket from the carriage. Place the carriage on the tracks. Slide the aluminum bracket in the anti-tip channel at an angle. Line the bracket up with the corresponding tabs on the cross member and line up at 90 degrees. Use the bolts, washers and buts provided to attach. N-BRK should slide throughout the length of the tracks without drag. (Fig. 15)



N-BRK installed, cross-section

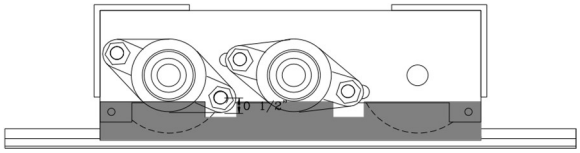


Figure 15: N-BRK Installed, side view

Mechanical Assist Installation:

- Loosen large bolts on either side of the drive shaft at the front of the carriage. Nuts are accessible from the inside of the carriage.

- Mount the Assist box assembly onto the carriage by sliding it behind the loosened bolt heads and washers. Install the chain around the upper and lower assist assembly sprockets with both sections of chain running through the neoprene chain tightener. Join the chain using the link components supplied. Retighten assist nuts. Ensure Assist Box stands upright. It must be fastened to the shelving or racking for stability. An aluminum angle extrusion (stiffener bar) is included for this purpose. From the back, drill pilot holes and fasten from inside the shelving through the stiffener bar and into the top part of the Duraprene portion of the Assist Box.(Fig. 16) (use Tek screws provided)

NOTE: Some types of shelving may require a custom bracket and fasteners to be supplied by installer.

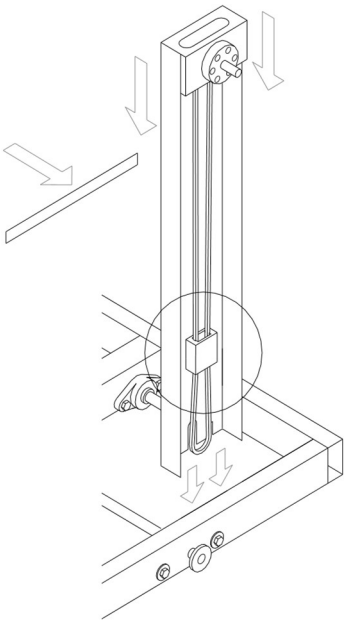


Figure 16: Assist Assembly installation and chain tightener

- Polymer chain tightener is designed to automatically eliminate chain slap.

- The chain tightener should ride freely along the chain, usually 4-8” above the lower sprocket. Adjusting is not necessary

- If using a finished steel housing, place the housing over the box assembly. Fasten with the plastic plugs provided using two per side.

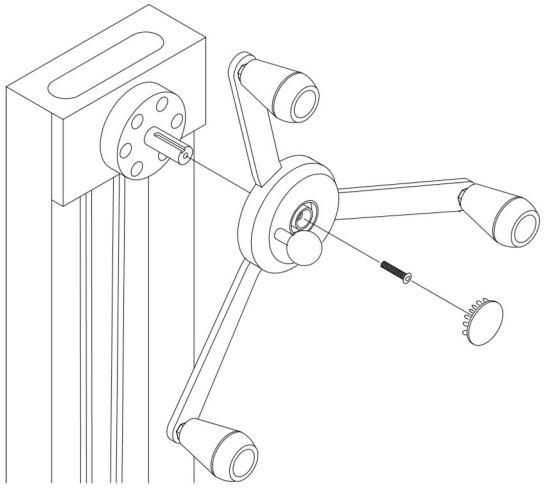


Figure 17:

1. Install key in keyway on 5/8” diameter Assist Head Shaft
2. Slide TriStar assist hub onto shaft
3. Install hub screw
4. Push in silver plug button

End Panel and Panel Trim Bar Installation

- If using Mizer- supplied end panels, the hole for the Mechanical hub is already located for convenient installation.

- If you choose to use alternative End Panels they are to be the width of the carriage less 2 ¾”, and the same height as the Panel Trim Bars (shelving height + 3”). Panel Trim Bars are designed for ¾” thick panels. Using a hole saw drill a 31/8” diameter hole in the laminate panel. The centre of the hole should be 33 7/8” from the bottom of the laminate panel, and centered from left to right. (See Figure 18)

1. *Use wood screws to attach Panel Trim Bars to the back edges of the end panels (3 screws per side).*

2. *Set the end panel in place, hooking the Panel Trim Bars into the hooks provided on the front corners of the carriage.*

3. *Use self-tapping screws (3 per side) to attach the Panel Trim Bars to the shelving. Screw from inside the shelving post ensuring equal positioning of the Panel Trim Bars along the vertical sides of the shelving end posts. Please note: Forcing the panel bars in to alignment with the shelving posts could bow the centre of the panel outwards to interfere with the rotation of the crank hub.*

- Attach Tri-Star crank handle (Fig. 17): Put key into key-way of shaft and push handle hub on. Use a 3/16” Allan key to install the screw from the end. Press round stainless steel cover into the recess to cover the screw head.

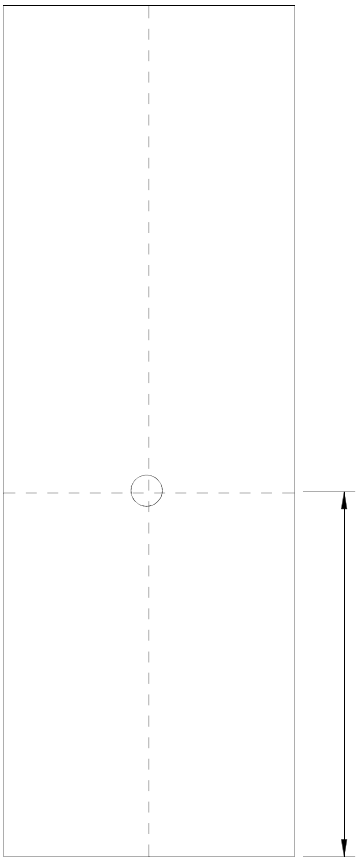


Figure 18: End Panel Cutting Template

- Cut from ¾" thick material
- Hole is always drilled 33 7/8" on center from bottom
- Drill 3 1/8" diameter hole
- Panel Width = Carriage Width – 2 ¾"
- Panel Height = Shelving Height + 3"

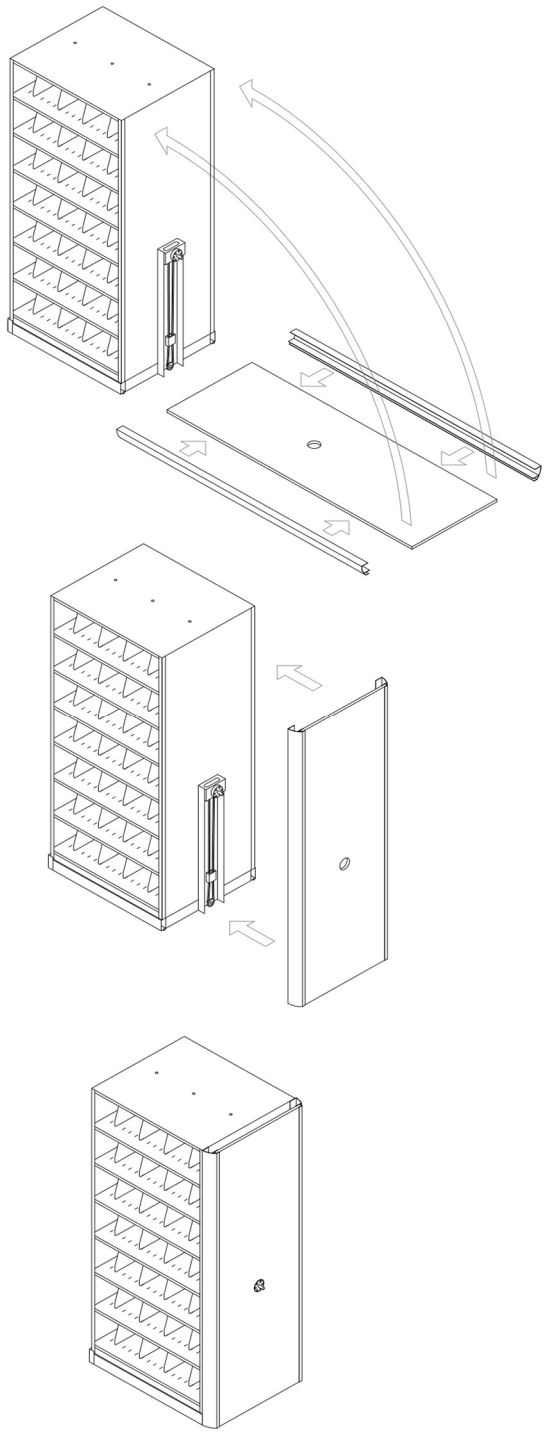


Figure 19: Installing End panel and panel bars