

EXPRESSPLUS

Dumbwaiter Installation Guide

Required Tools:

- Impact driver
- Drill
- Sawzall/Miter Saw (to cut aluminum track to length)
- Rubber mallet
- Ratchets, sockets, wrenches- ½", 7/16", 9/16", ¾"
- Screw drivers- small wiring screwdriver, standard #2 phillips head
- adapters for impact
- Ladder



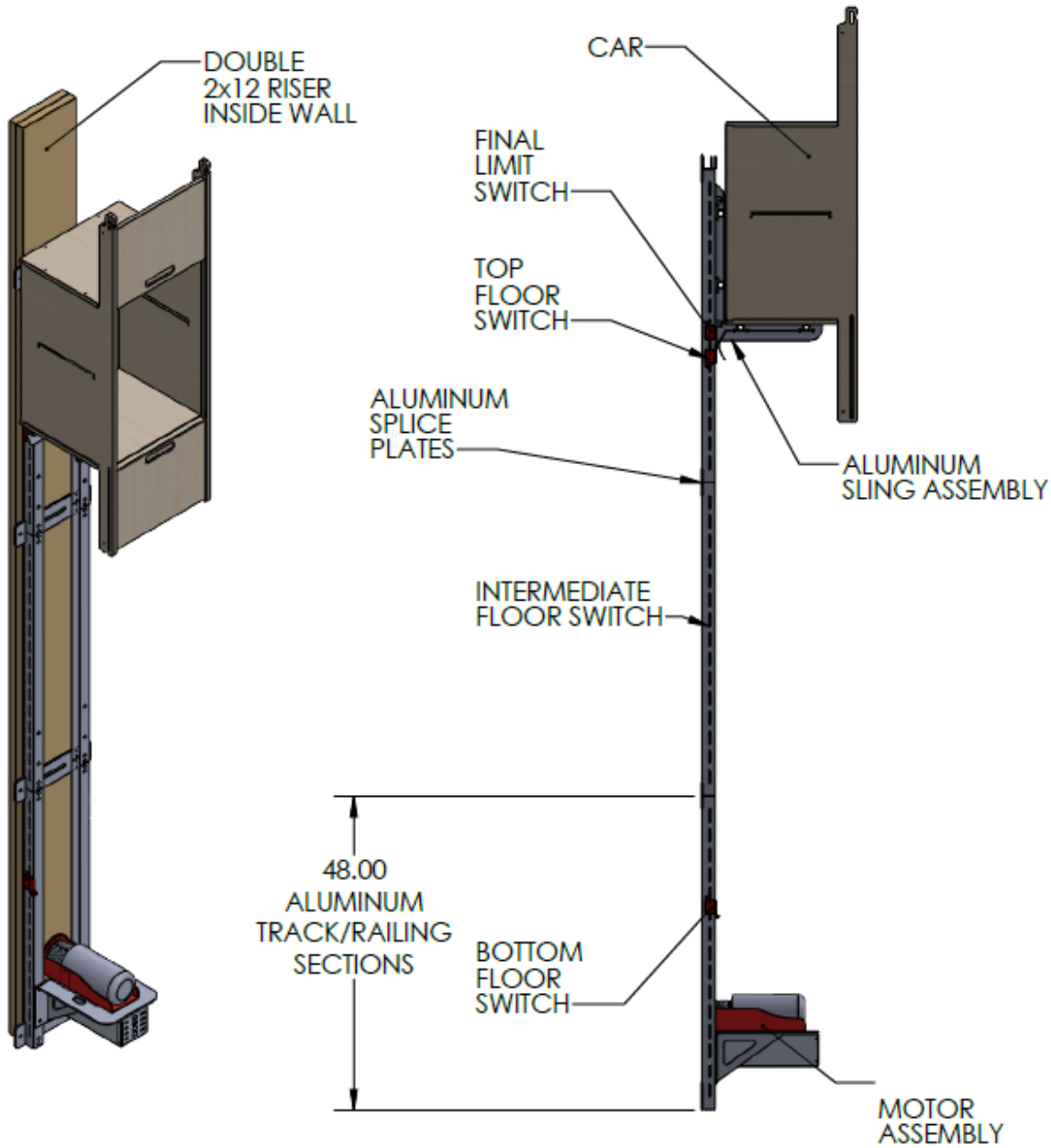
Introduction:

- Install unit based on the approved drawings included in your kit. In the event of conflict between this installation manual and approved shop drawings, shop drawings are the “king” document that should be followed.
- The QS-200 has a maximum load capacity of 200lbs or 300lbs, based on options. Travel speed is approximately 32 fpm.
- The car may be called or sent to any floor level, from any floor level.
- The doors will only open when the car is present, and it will only move if all doors are closed.
- Door locks stay unlocked for approximately 5 minutes. To reactivate timer, press the call button where the dumbwaiter is located.
- The QS-200 is a dumbwaiter designed and manufactured in compliance with ASME A17.1 standards. The track and car frame are machined aluminum equipped with roller guides and a broken cable safety system. The car is equipped with bi-parting doors, an optional shelf, and is available in white laminate, pre-finished or unfinished birch, cherry, mahogany, oak, marine grade plastic, stainless steel. This dumbwaiter is intended to transport **Non-Living cargo only, absolutely no passengers are permitted.**
- The system requires a 110 vac circuit, 15amp. The power source should be located where the motor is intended to mount (top or bottom). The controller is shipped with a standard cord end to plug into a standard 15amp outlet. Some jurisdictions may require a disconnect-in which case it will be necessary to remove the cord end and hardwire directly to the disconnect.
- When possible, it is significantly easier to install this dumbwaiter with the front wall of the dumbwaiter shaft open, or at least the very top or very bottom section. It is possible to install

the dumbwaiter in a fully enclosed, finished shaft, but certain parts of installation will be significantly more difficult.

- One wall of the hoistway must have significant structural framing support inside the wall. We recommend a doubled 2" x 12" running vertically the entire length of the hoistway, centered on the support wall. (see drawing detail)
- It is strongly recommended to provide an access hatch where the motor controller is located, to assist with servicing the dumbwaiter in the future. The hatch must be designed to "require tools or key" to open. An optional access door switch is available. This switch will prevent the dumbwaiter from operating when the access door is open.
- Un-plug run bug when not in use.

System Overview



Quick Start:

1. Assemble first section of rail structure outside of shaft.
 - If bottom mount machine, install motor/controller assembly
 - Install sling
 - (This step is commonly performed at the factory prior to shipping)
2. Place the assembled section of rails, with sling and motor, into the shaft.
3. Route chain through idler sprocket and attach to car
 - Use run bug to feed chain.
4. Verify safeties are working properly by lifting sling, allowing chain to go slack, then push the sling down.
 - Use run bug to run car up to release safeties.
 - Adjust as necessary for smooth operation
 - Ensure cable is properly spooled onto drum
5. Install floor switches and final limit switch.
 - Mount floor switches on the LH side of the rail structure.
 - Bolt head should be inside the track, the nut should be on the outside.
 - Run carriage to each floor level and adjust switch
 - Fine tune floor levels at end of installation
 - Carefully route wires back to controller
 - Plug into appropriate receptacles
6. Install cab.
 - Attach
 - Use a rubber mallet as necessary to gently seat walls together.
 - Install the car doors
 - Lace relating cable through pulley and attach at both ends.
 - Adjust relating cable on top door and set lock nut
 - Screw cab together from the top and bottom
 - Position cab to:
 - ensure proper running clearance
 - Ensure alignment with hallway door
 - Secure cab to sling through the large slot adjacent to the sling
 - Secure under side of cab to the sling
7. Install Door locks
 - Reference the template and instructions provided with the door locks.
 - Route wires to controller and plug into appropriate receptacle
8. Install Hall stations
 - Route wires to controller and plug into appropriate receptacle
9. Test entire system
 - Call dumbwaiter to each floor
 - Ensure door locks release
 - Ensure “car here” lights illuminate

- Ensure “in use” lights illuminate
- Ensure floor level stopping is sufficient
 - Adjust floor switches as necessary
- Test slack cable and final limit switches for proper operation.

Detailed Instructions:

The Rails / Track:

Reference the shop drawings/layout drawings to determine if your unit is a top mount machine or bottom mount machine.

Establish the centerline of the track based on the layout drawings. Snap a chalk line.

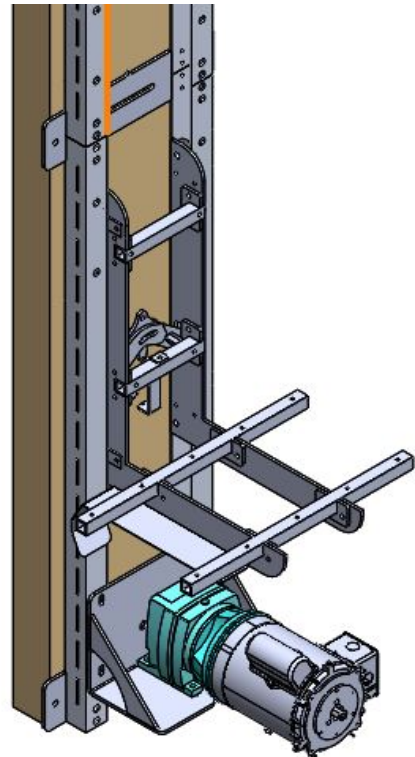
- The splice plates have a center line arrow on one side- align this arrow with your chalk line.

Locate the guide rails and splice plates (aka fish plates)

Assembly the first section of track outside the hoistway by loosely screwing the rails to the fish plate. The machined grooves will keep the tracks square to each other. Pay close attention that the rail seats flush with the bottom of the fish plate.

It is easiest to assemble the machine and sling into the rails, then set the entire assembly – first section of rails, motor/controller, and sling. (This step is commonly performed at the factory prior to shipping)

Once the assembly of the first section of track is complete, set it inside the shaft, and loosely anchor it to the wall. It is not recommended to fully secure it to the wall at this time.



Next, continue stacking the rails and fish plates until you reach the top level.

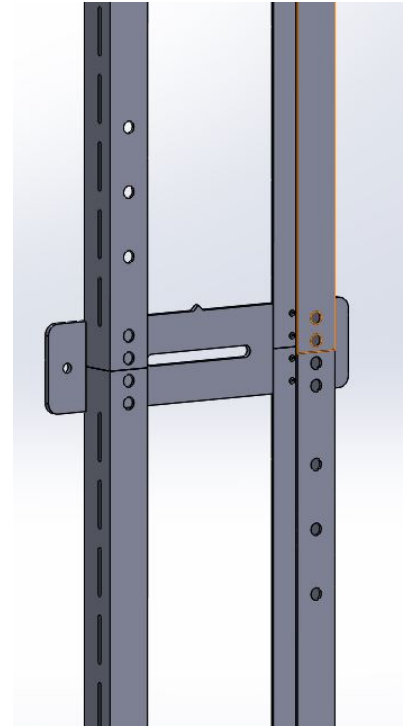
IMPORTANT NOTE: The track/rails must extend at least 26" above the top loading level in order to have enough clearance for sling to reach the top level. You must have at least 52" above loading height for the standard car to reach the top level.

It is sometimes necessary to cut the top or bottom section of rail onsite. (cut the top rail if the motor is mounted at the bottom, cut the bottom rail if the motor is mounted at the top.) This is easily done by following these steps:

Determine how long the top rail needs to be.

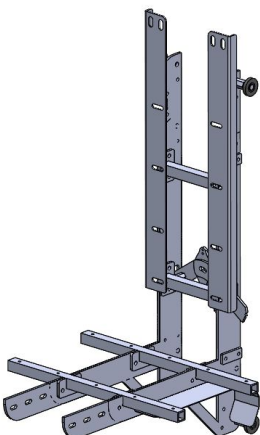
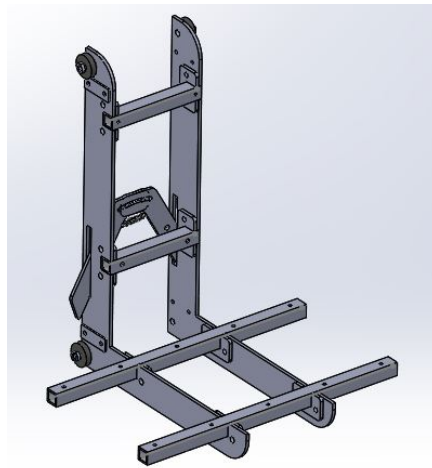
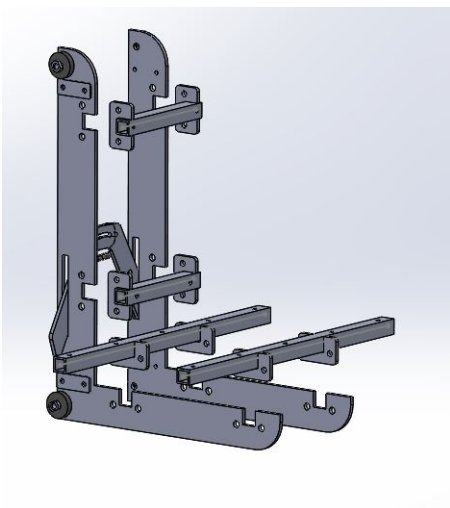
- a. Measure from the ceiling down to the top of the last rail stacked.
- b. Subtract 3".
- c. Cut top (upper) side of each rail
- d. Use the drop (piece you cut off) as a template for the holes. Mark the holes and drill 5/16" holes on the back, and 1/2" access holes on the front.

Once you have the rail/track structure fully stacked and tightened to each fish plate, level the entire track/rail structure and secure it to the wall using (2) 3/8" dia. lag bolts per fish plate.



Sling:

- Sling is typically pre-assembled from the factory and pre-installed inside the top or bottom rails. If it is not assembled, or if it was necessary to disassemble, follow the steps below:
 - Set the 2 side styles into track
 - Set the 3 crossmembers into place.
 - These are a snug fit, but will snap into place
 - Insert bolts into the flanges and tighten
 - Set the 4th crossmember with the safety linkage into place
 - Carefully guide the safety arms through the slots on the sling
 - Attach the limit switch cam to bottom of the sling



Cab steady bracket

Chain Installation:

(Note: The chain is pre-installed in the chain guide and attached to the bottom of the car frame to the tension spring.)

Once the gearmotor, overhead sprocket (or bottom mount idler sprocket), and sling have been installed:

- Route the chain over the top idler sprocket (or bottom mount idler sprocket), down to the sling and attach to the safety linkage hitch point using the included master link.

NOTE: use caution and hold tension on the chain until it is secured to the sling. The weight of the chain will cause it to run up and off the sprocket if it is not attached to anything. We recommend using a pair of disposable gloves when handling the chain. The chain is pre-lubricated with oil and is messy to handle.

- Estimate the total length of chain by loosely holding the chain to the hitch point on the car frame. Add about 1-3 links to the estimated length.
- Use the included chain break tool to cut the chain to length.
 - *Note: If you cut it too short, use the extra master link to extend the chain.*
- Attach the chain to the car frame hitch point using a master link.
 - *There will most likely be slack in the chain at this point. Any slack will be adjusted on the tension spring under the car in the next step.*
- Power up the controller
 - Install temporary jumper on the slack chain and final limit switches.
 - Plug in the “run bug” rocker switch.
- Ensure the plastic slack chain switch activation bars are in place.
 - These small plastic bars slide into the top of the chain guide. It is possible for them to fall out of place when there is no tension on the chain.
- Carefully “bump” the motor in the up direction (approximate 1 second bumps)
 - Continue to bump the motor up until the car frame begins to move up.
 - Use caution not to let any slack chain back-feed or wrap into the sprocket.
- Adjust the chain to the tensioning spring hanging down from the car sling.
 - The spring must maintain tension on the chain at all times.
 - In the resting position, the spring should be extended to an overall length of approximately 5”. Do not exceed 6”
 - Move the spring to lower chain links as necessary to achieve proper tension.
- Attach the safety tether cable to the chain. (this will secure the chain in the event of a spring failure.)
 - Make sure the safety tether has enough slack to allow the spring to extend a full 6”, but no more.
- Remove any safety rigging previously installed.
- Run the dumbwaiter the entire length of the shaft and check the chain for tension. If it becomes excessively loose, stretch the spring and tighten the tension on the spring.

Proceed with the installation of limit switches, car, locks and buttons.

Switches, Locks and Buttons:

- Install the floor switches and final limit switch.
 - Use the run bug to run the car to each floor level and establish an approximate floor level. Mark the switch location on the rail with a marker.
 - Attach the switch to the guide rail so the cam activates the switch
 - It is recommended to install the switches on the LH side of the rail structure.
 - You can make final floor level adjustments once the cab is built.
 - Notice the switches will have different wire lengths. Use the appropriate wire length for the appropriate floor level.
 - Set the final limit switch to activate approximately 3" above the top level. Make sure this switch will activate before the car makes physical contact with any overhead obstructions.

- Set the call stations in place. The call stations are designed to fit into a standard 2 gang electrical box. This kit includes "remodel" style boxes which can be cut into existing sheetrock. You may also pre-mount "new construction" style boxes prior to sheetrock.
 - The call stations are low voltage 24 VDC.

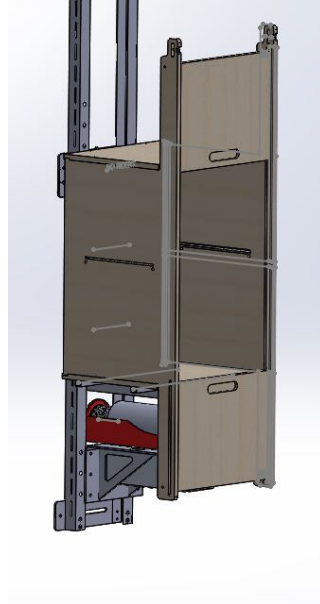
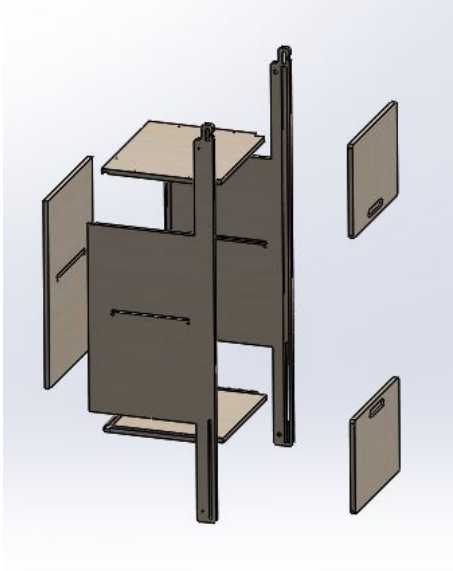
- Install door locks.
 - Use the mounting template included with the door lock to fasten the lock in the upper corner of the door strike side of the door (side opposite of the hinges).

- Route door lock and hall station wires back to controller and plug into appropriate receptacle.

Cab:

- Attach the gate tracks (if equipped) to the side walls

- Assemble the cab in this order:
 - Bottom
 - Rear Wall
 - Side walls
 - Tap all walls together with rubber mallet
 - Top
 - Set the gates into the track and attach to the slide guides.
 - Tap all walls together with rubber mallet.
 - Ensure the gates smoothly move up and down
 - Screw cab together from the top and the bottom
 - Install the relating cables on the gates



Final Adjustments:

- Carefully run car to each floor.
 - Use the run bug to manually run the car one complete cycle prior to running on automatic.
- Watch all running clearances closely.
- Adjust stopping level as necessary.
- Check all bolts and hardware to ensure tightness.
- Make sure all wires and cables are securely fastened and will not interfere with the car as it travels up and down the hoistway.
- Check each floor level.
 - Ensure call send button work
 - Ensure in use lights work
 - Ensure doors and gates open and close properly
 - Ensure the car will not move unless the door is closed.

