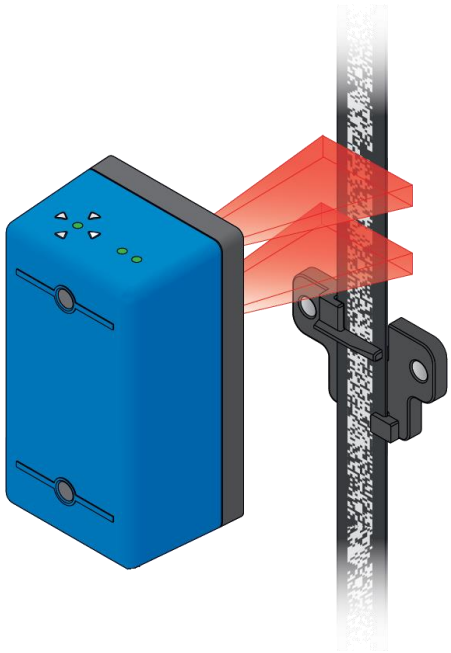
QUICK START MANUAL



CEDES APS System
Landing System

Ver 2.2

http://www.smartrise.us/support/training-videos/

1 Contents

2 LIST OF FIGURES AND TABLES

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1.0 PURPOSE

This quick start manual is to be used as a supplemental document to expedite installation of the CEDES Absolute Positioning System (APS). Please use caution and read full manuals for thorough descriptions and specifications. This document will guide a step by step installation in subsequent order. Please follow along closely and the installation will go smoothly.

2.0 SCOPE

Included in this manual is a brief installation process of the CEDES APS Landing System. Precautions, general safety, proper installation, hardware and components are all discussed. Basic SRU configuration, learn procedure and troubleshooting is also discussed. Please refer to the supplemental CEDES and Smartrise Engineering manuals accompanied in the package for further information, Thank you.

3.0 SYSTEM OVERVIEW

Mounting

Figure 1: Tape Clip Assembly

TAPE

Figure 3: Tape

Camera Assembly

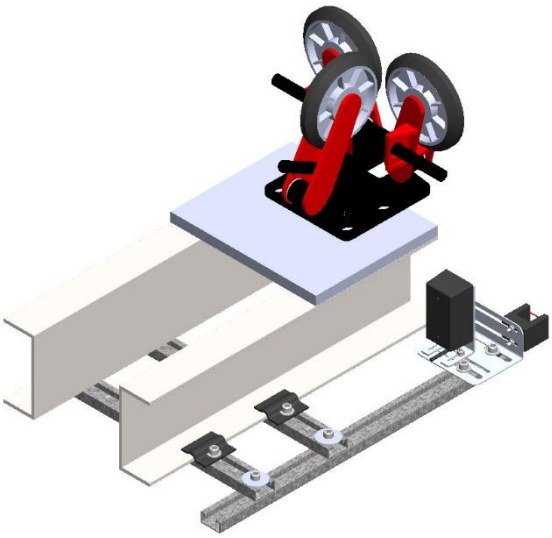


Figure 2: Camera Assembly

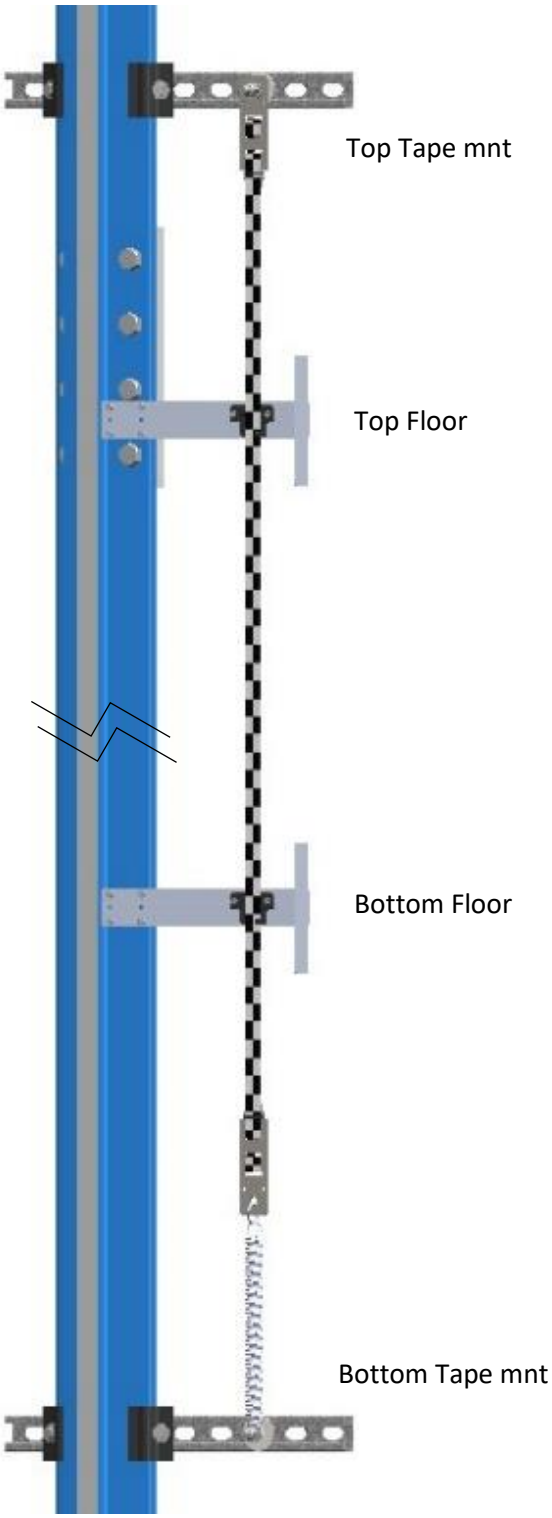


Figure 4: Complete Install

2.0INSTALLATION

4.1 TAPE

Code Tape – this special coded tape provides the absolute positioning feedback to the *CEDES Camera*.

Tape Installation

> **Caution**:
>
> The tape edge is sharp! Whenever you see this symbol make sure you wear cut-proof gloves when handling the tape.

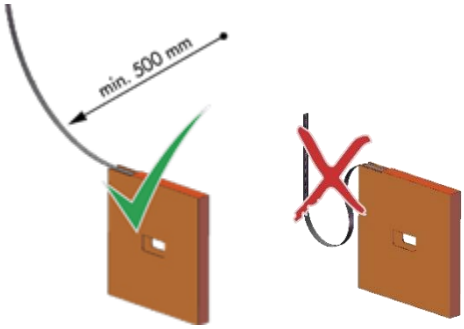
Step 1 – Tape - Open

Step 1: Open the tape box at the top corner being careful of the sharp end or edge of the tape.

Step 2 – Tape – Dispense

Step 2: Pull the tape straight out so that it can be attached to the *Top Tape Bracket*.

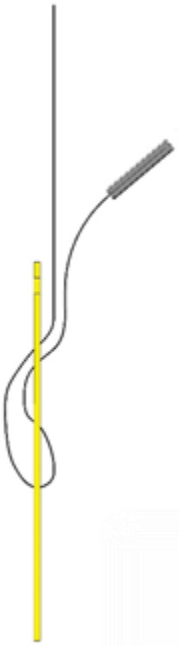
Step 3 – Tape – Bend Radius



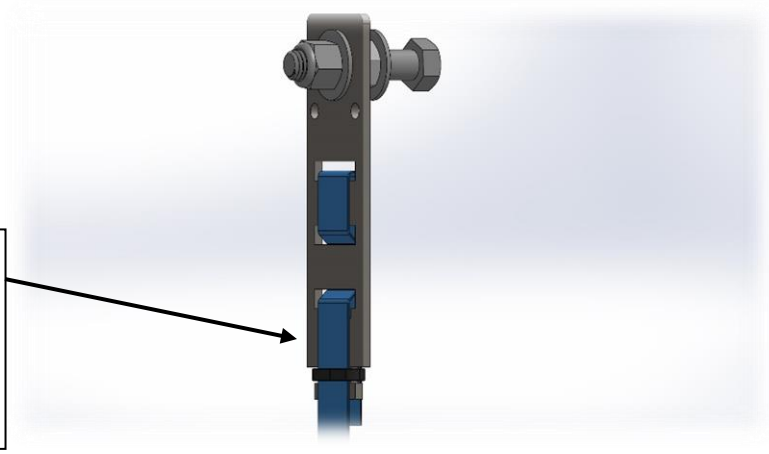
Step 3: Pull a small amount of tape from the box as needed to complete Steps 4 & 5.

Caution: Don't pull too much out of the box as excessive bending in the tape can damage it.

Step 4 – Tape – Secure to Top Bracket



NOTE: Make sure that the words "Left" are on the left side of the tape with the barcode facing out towards the camera.



Step 4a: Serpentine the tape through the bracket as shown. Zip tie afterward.

4.2 SENSOR ASSEMBLY

Complete Sensor Assembly

Assembly contains; CEDES Optical Sensor, Optical Sensor mount bracket, CEDES Exact Position GLS Reader, Sensor Array bracket, and associated hardware. Note, sensors can be oriented differently as long as corresponding tape and blades are aligned correctly. Connect Optical Sensor and GLS Reader to the car top SRU board. Secure cabling.

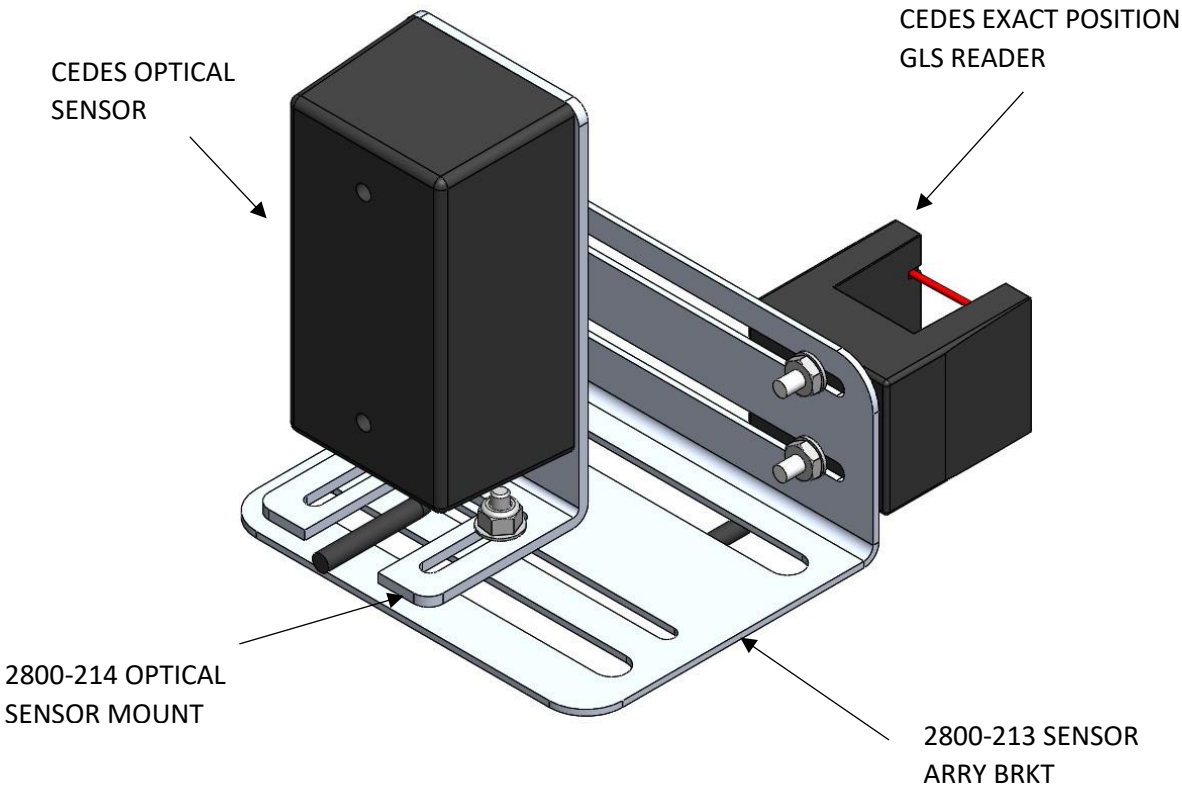


Figure 5: Sensor Assembly

Secure Sensor Shelf Assembly to car top frame C-Channel

- Note: Exact positioning and lengths of Unistrut can be adjusted as needed as long as the Sensor Array is positioned as shown in figure 7.
- Cut two lengths of Unistrut to 18”, and one length to 24”.
- Bolt the two, 18” lengths of Unistrut to the C-channels as shown in figure 6.
- Bolt the 24” length of Unistrut to the two 18” lengths as shown in figure 6. Note: the 24” length may be bolted to the top of the two 18” lengths if desired.
- Temporarily affix a Tape Clip Assembly onto the guide rail to use as alignment for the Sensor Array Assembly. See figure 7.
- Set the end of the 24” Unistrut at 3.0” from the rear surface of the guide rail as shown in figure 7.
- Loosely bolt the Sensor Array Assembly onto the 24” Unistrut with the Door Zone Blade centered horizontally in the GLS Reader as shown in figure 7.
- Position the Sensor Array at the distances shown in figure 7 then tighten all bolts. Note: the Optical Sensor Mount bolts may be loosened if needed to adjust the position of the sensor.

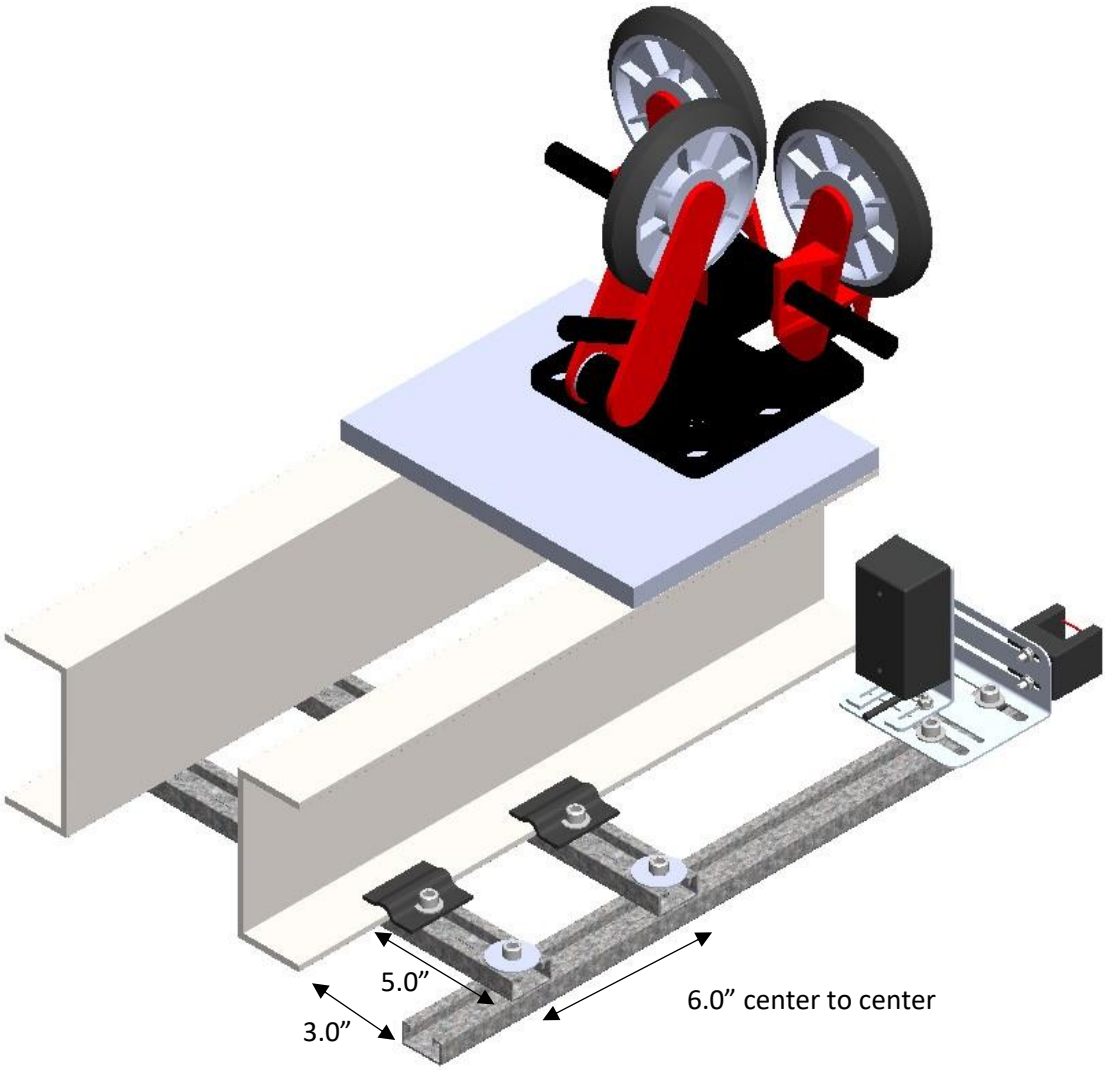


Figure 6: Unistrut installation

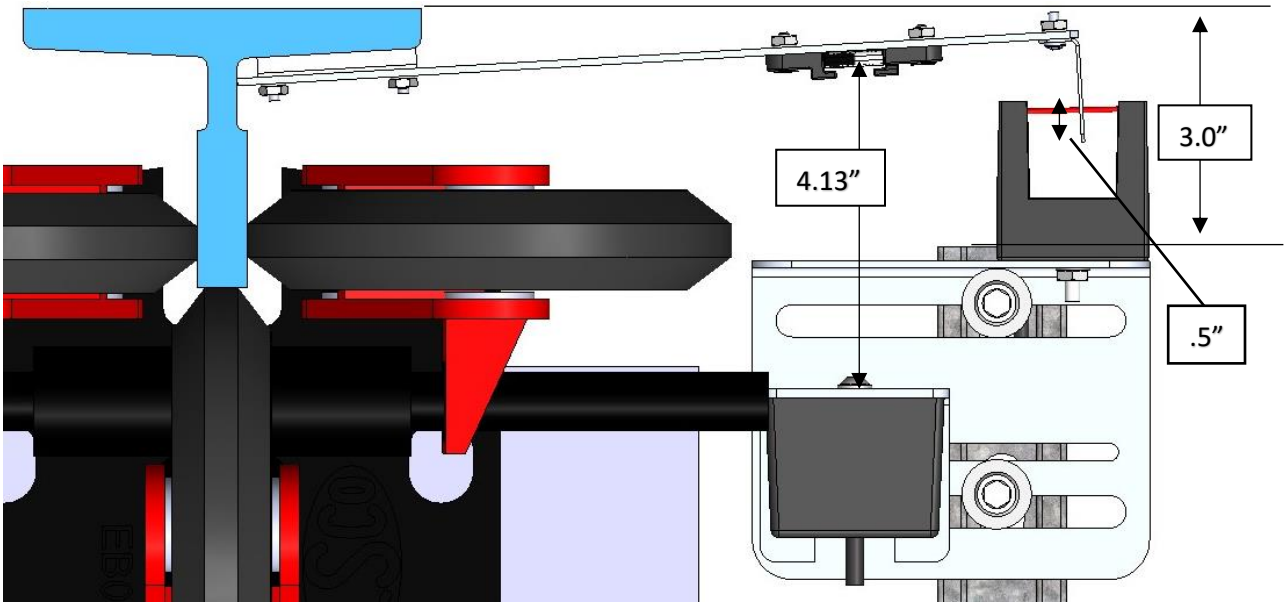


Figure 7: Sensor Array Assembly positioning

Alternative Sensor Shelf Assembly Installation

- Space permitting, the Sensor Array Shelf may be installed on top of the C-channel beams as shown in figure 8.

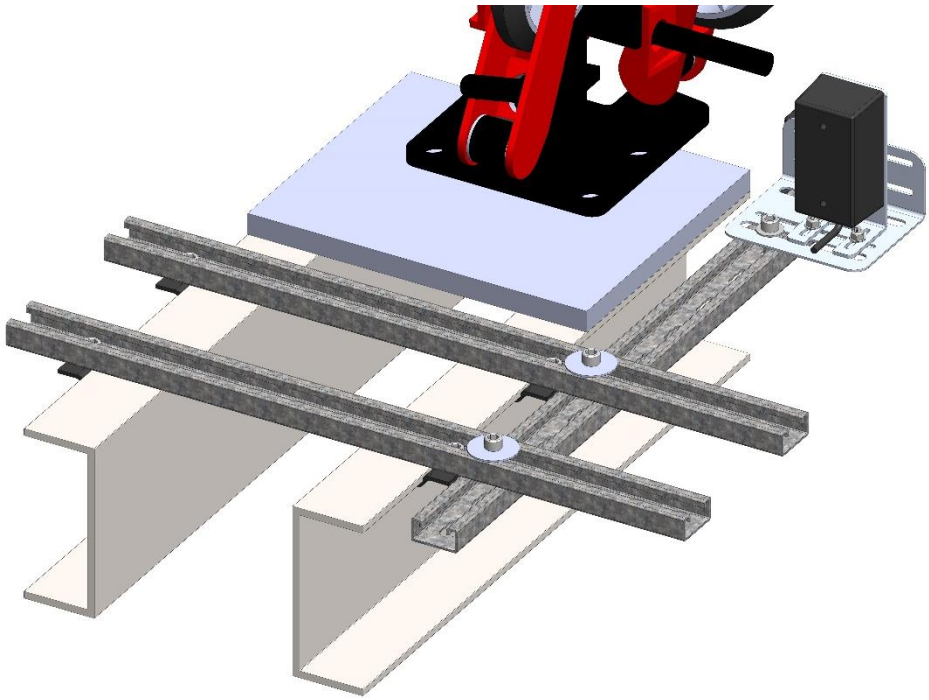


Figure 8: Alternate Unistrut installation

4.3 UPPER TAPE MOUNTING ASSEMBLY

Top Tape Installation

- Affix an 18” length of Unistrut to the top of guide rail as shown in figure 9.
- Loosely assemble the Upper Tape Mounting Assembly in the order shown in figure 10.
- Position the Upper Tape Mount Assembly 7&5/8” from the surface of the guide rail to the center of the 3/8” bolt as shown in figure 9.
- Tighten the first hex nut to secure the assembly in place
- Thread the Nylock nut onto the bolt until there is a .2” gap between the two flat washers that are on either side of the Tape Interlock bracket as shown in figure 11. This gap is required to relieve twist in the tape.

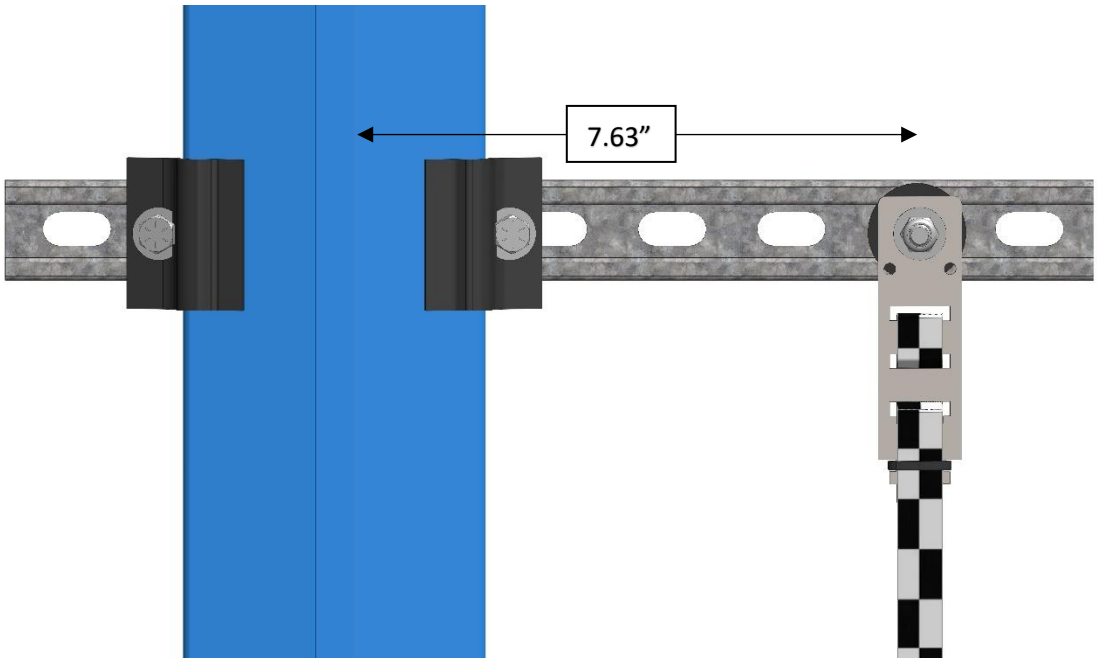


Figure 9: Upper tape Unistrut Installation

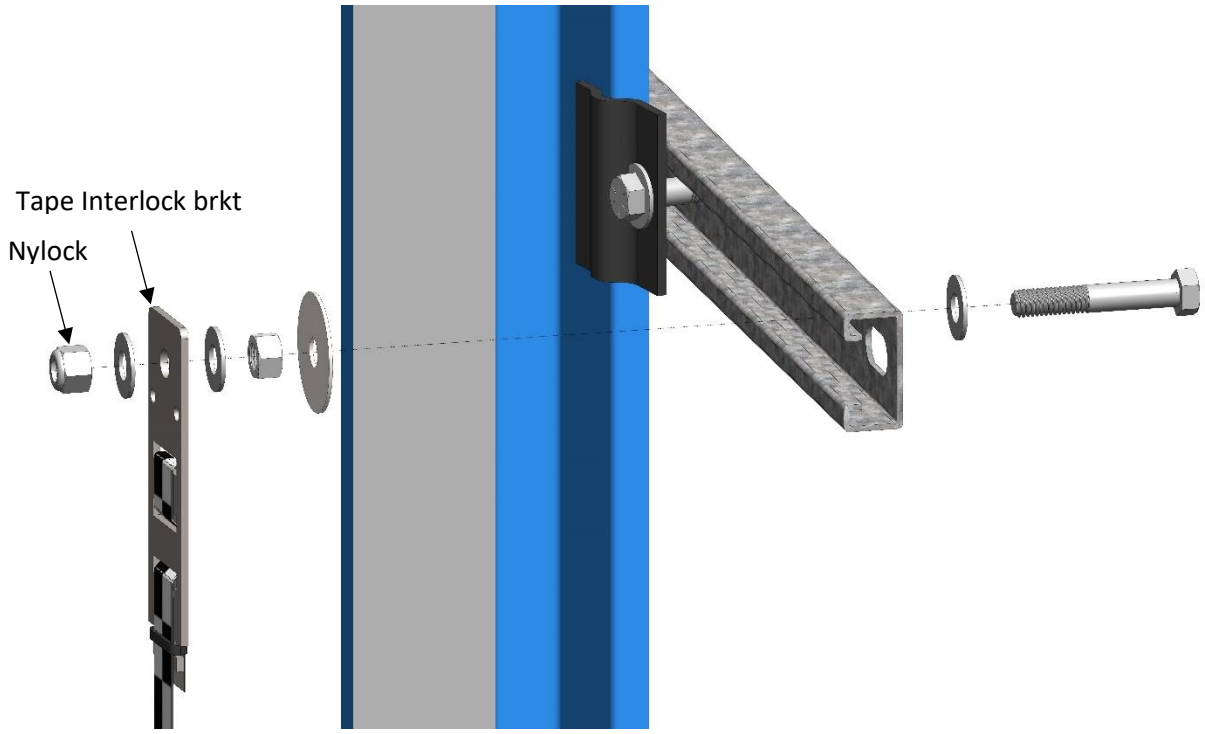


Figure 10: Upper tape mounting assembly

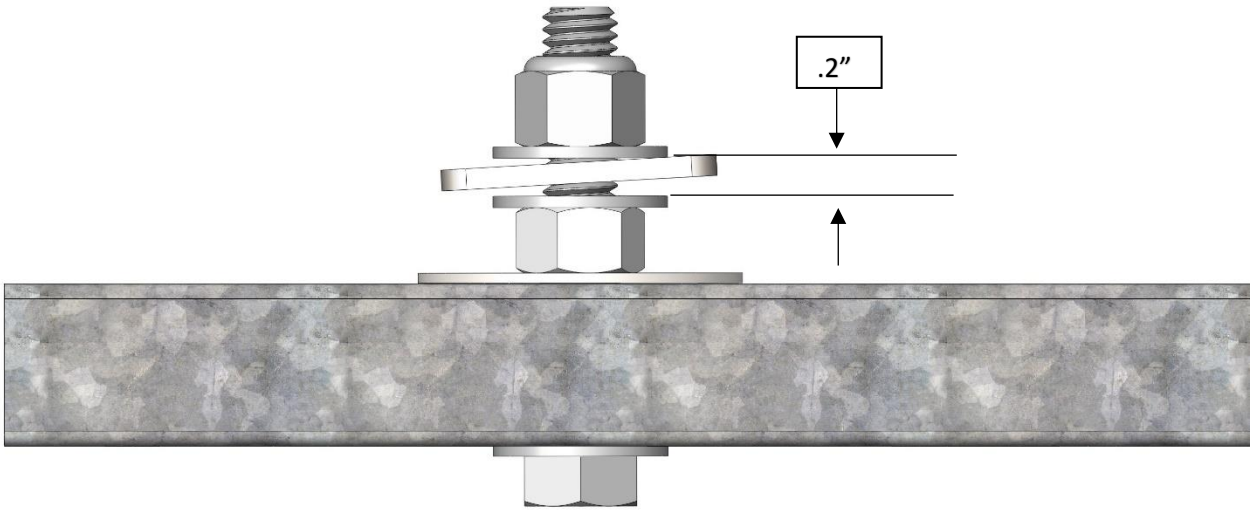


Figure 11: Upper tape mounting assembly

4.4 TAPE CLIP ASSEMBLY

Tape Clip Assembly Installation

- As you descend, you will unspool the tape, install the Tape Clip assemblies and set the Door Zones.

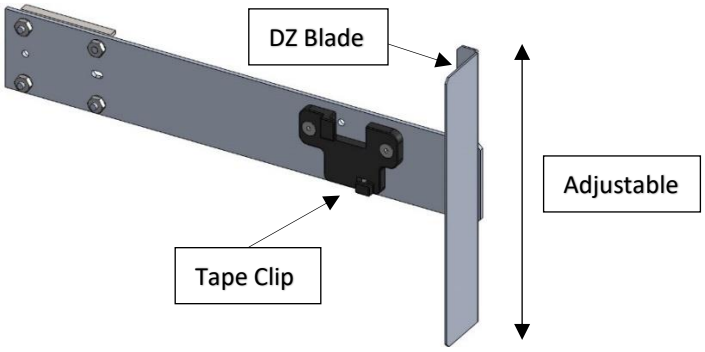
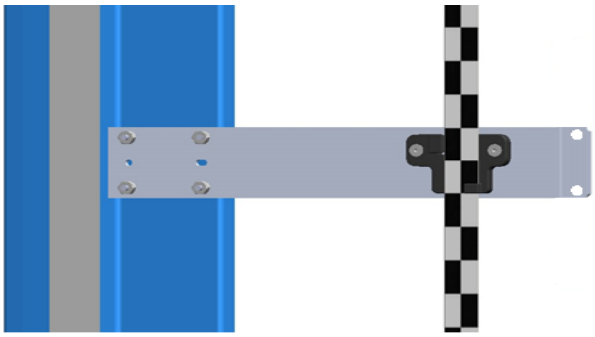


Figure 12: Tape Clip assembly

- The Tape Clip assembly includes the Tape Guide Clip, Door Zone Blade and the mounting magnets already preassembled.
- Bring the car to floor level.
- Wipe rail clean where clip assembly will be placed.
- Holding the Tape Clip assembly with one hand and the Tape with the other, rotate the Tape into the Tape Clip as shown in figure.
- Place the Tape Clip assembly onto the Guide Rail so that the DZ blade is centered vertically with the GLS reader Optical Axis as shown in figure 16.
- If there are bolts or other obstructions not allowing the assembly to be placed precisely where needed, then remove the two screws, washers and nuts securing the DZ Blade and adjust the blade up or down as needed.
- Ensure that the assembly is sitting flush to the rail as show in Figure 15.

NOTE: In applications where there is 15ft of distance between door zones, you will need to place an extra bracket between those door zones. The Bracket will only contain the Tape Clip and NOT the DZ Blade. This will minimize tape twisting caused by long distances between Door Zones. These extra Tape Clip Brackets will be provided as needed.



To install the guide clips:

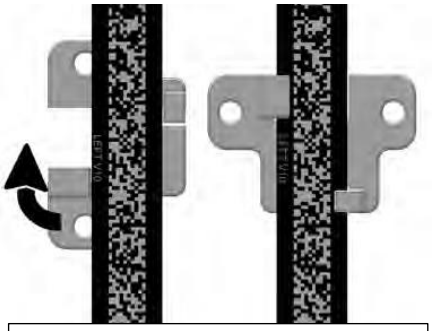


Figure 13: Tape Clip Insert Example

Insert Tape into guide clips by rotating it clockwise onto the tape.

Figure 14: Optical Axis

CAUTION: Be careful not to twist or bend the tape as it is lowered.

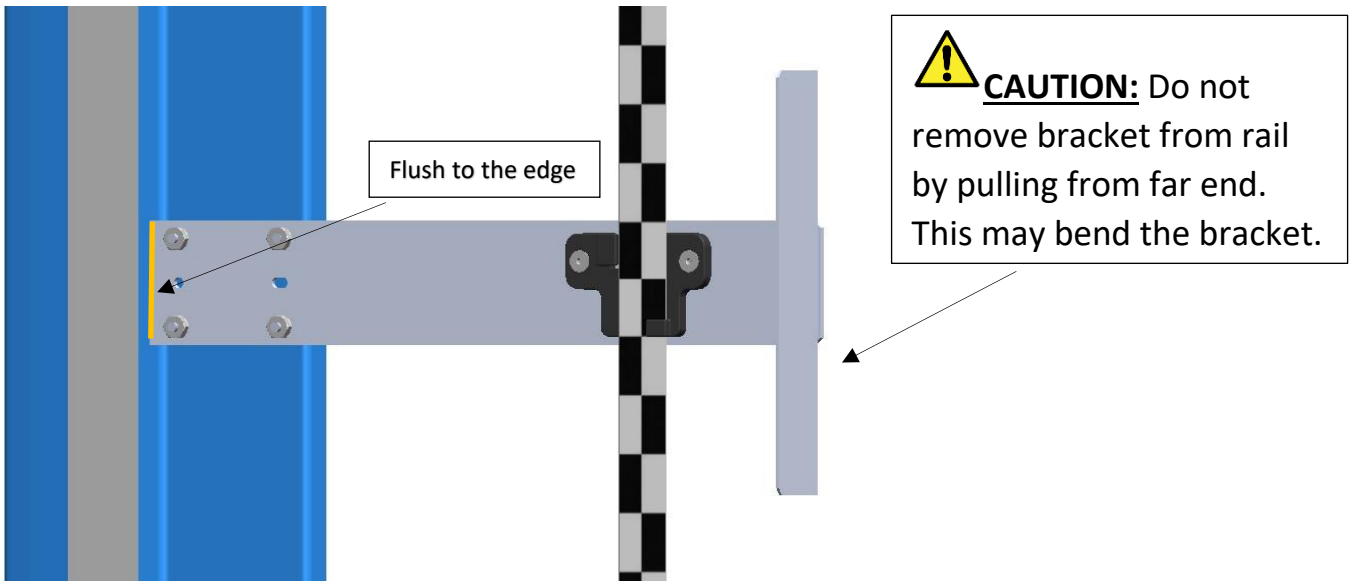


Figure 14: Tape Clip assembly Alignment

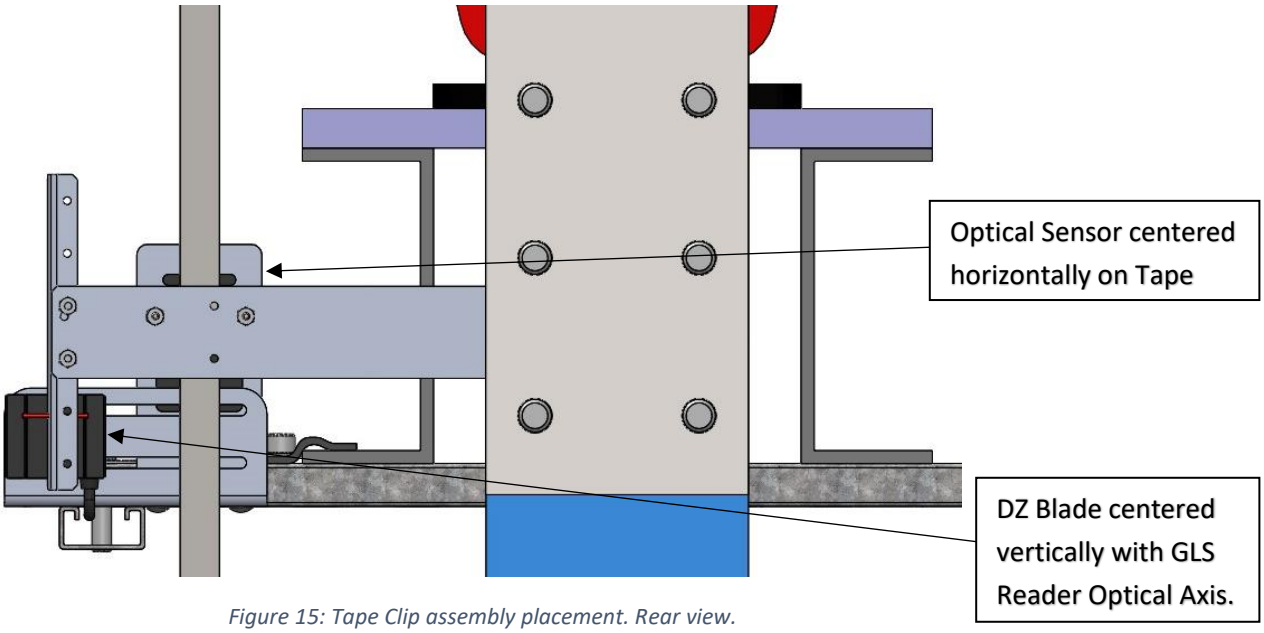


Figure 15: Tape Clip assembly placement. Rear view.

- An extension arm is provided if the assembly cannot be placed where desired.
- To install the extension arm, remove the DZ Blade from the Tape Clip assembly and install Door Zone Extension Arm using the same screws, nuts and washers, as shown in figure 17.
- Using two more Screws, nuts and washers provided in the install kit, mount the DZ Blade to the DZ Extension Arm in the desired location.

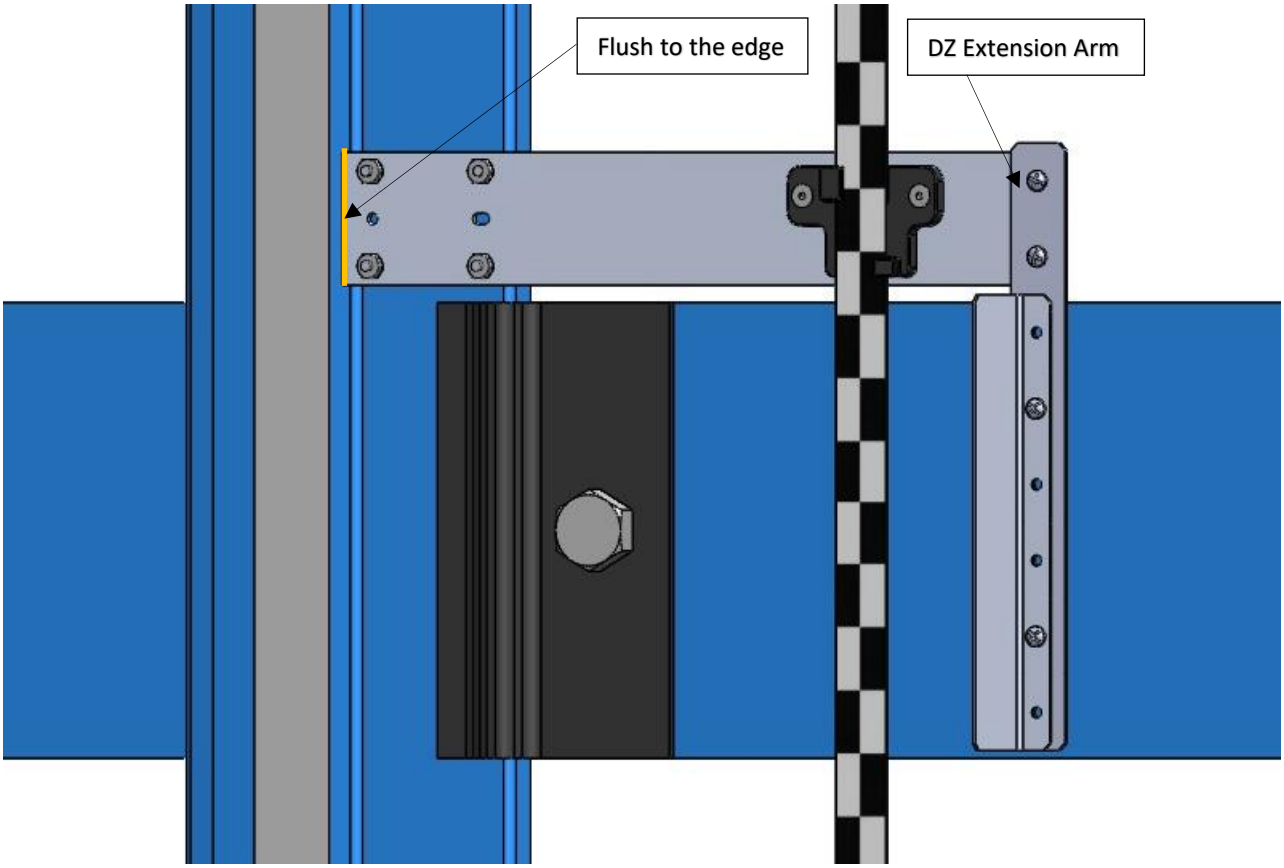


Figure 16: DZ Extension Arm

- Continue down the hoist way, placing the Tape Clip assembly at each landing.

4.5 LOWER TAPE MOUNTING ASSEMBLY

Lower Tape Installation

- Affix an 18” length of Unistrut to the bottom of guide rail as shown in figure 19.
- Loosely assemble the Lower Tape Mounting Assembly in the order shown in figure 18.
- Position the Lower Tape Mount Assembly 9.36” from the surface of the guide rail to the center of the 3/8” bolt as shown in figure 19.
- Tighten the first hex nut to secure the assembly in place
- Thread the Nylock nut onto the bolt until the two flat washers that are on either side of the Spring are just touching the spring loop as shown in figure 18. This nut does not need to be tightened.
- Connect the spring to the Tape Interlock bracket using the Split Ring as shown below in figure 19.

- Ensure that the spring is stretched approximately 3 inches when installed.

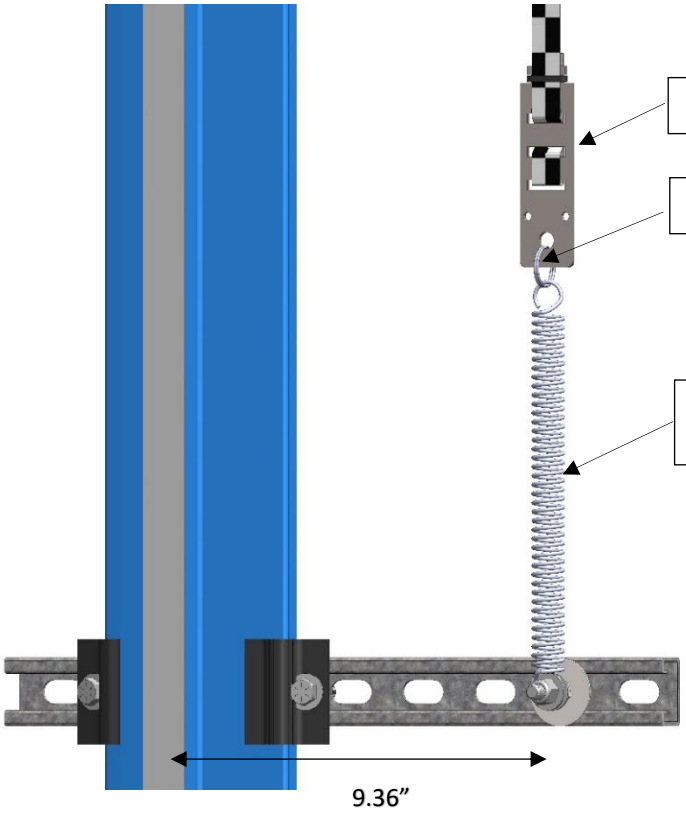


Figure 18: Bottom Tape Installation

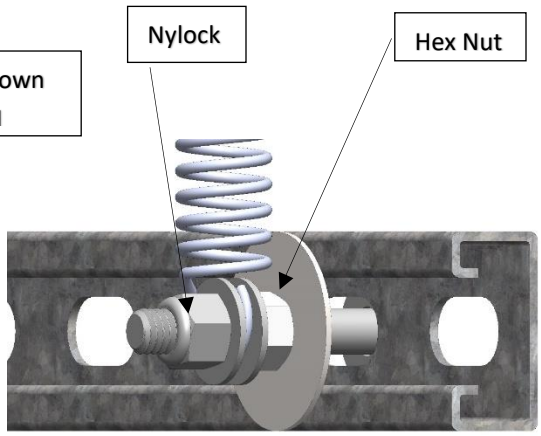


Figure 17: Bottom Tape Installation

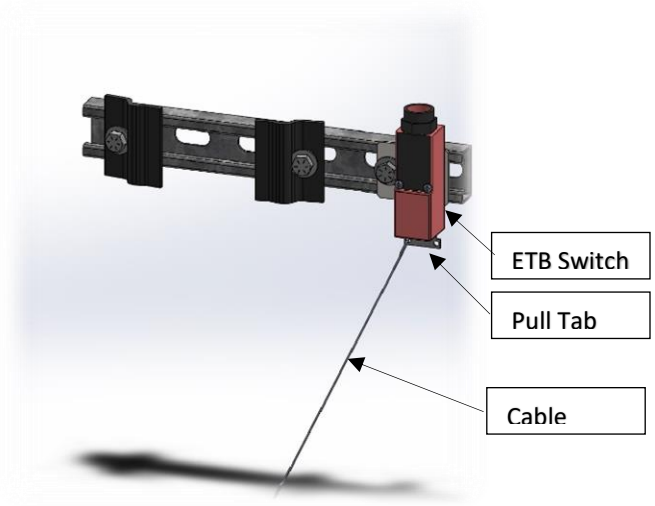
4.6 EMERGENCY TAPE BREAK SWITCH ASSEMBLY

Emergency Tape Break Switch (Optional)

- Affix a 12” length of Unistrut to the guide rail approximately 20” above the lower tape mounting assembly Unistrut as shown in figure 21.
- Attach bracket and switch to Unistrut as shown in figure 20.

Adjust the tension of the spring by raising or lowering the *Unistrut Mounting Point* so that there is 3” of stretch.

- Link the ETB switch to the tape interlock via the cable kit provided as shown in figure 21. Leave 1-2 inches of slack in the cable. Note: switch can be mounted vertically as well by inserting switch pull tab into bottom end; pull should always face downward as shown.



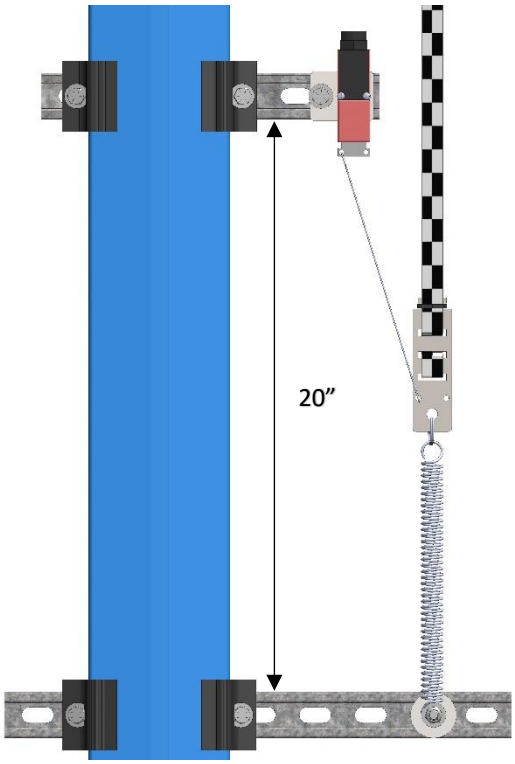


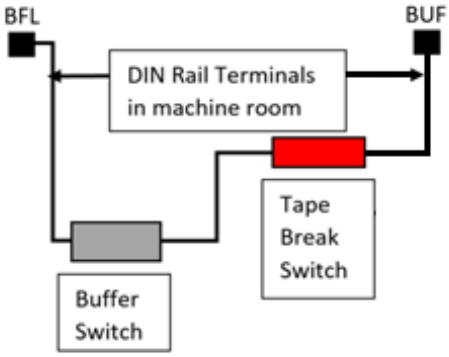
Figure 21: ETB Switch Setup

NOTE: The *Emergency Tape Break Switch* should be installed in the safety string in **series** with the Buffer Switch.

There should be slack in the wire when the tape tension spring is fully extended. This slack will allow for tape and/or building movement.

If the tape breaks, the *Tension Spring* will retract and pull the *Emergency Tape Break Switch*, opening the safety string. Make sure that the cable length allows the tab to pull out of the *Tape Break Switch* when the spring is retracted.

Figure 2019: Emergency Tape Break Switch



4.7 FINE TUNE

See Camera Alignment section for camera placement. Camera should be at a distance of 4.13” from tape. *Tolerance of camera is +, - 1 cm*.

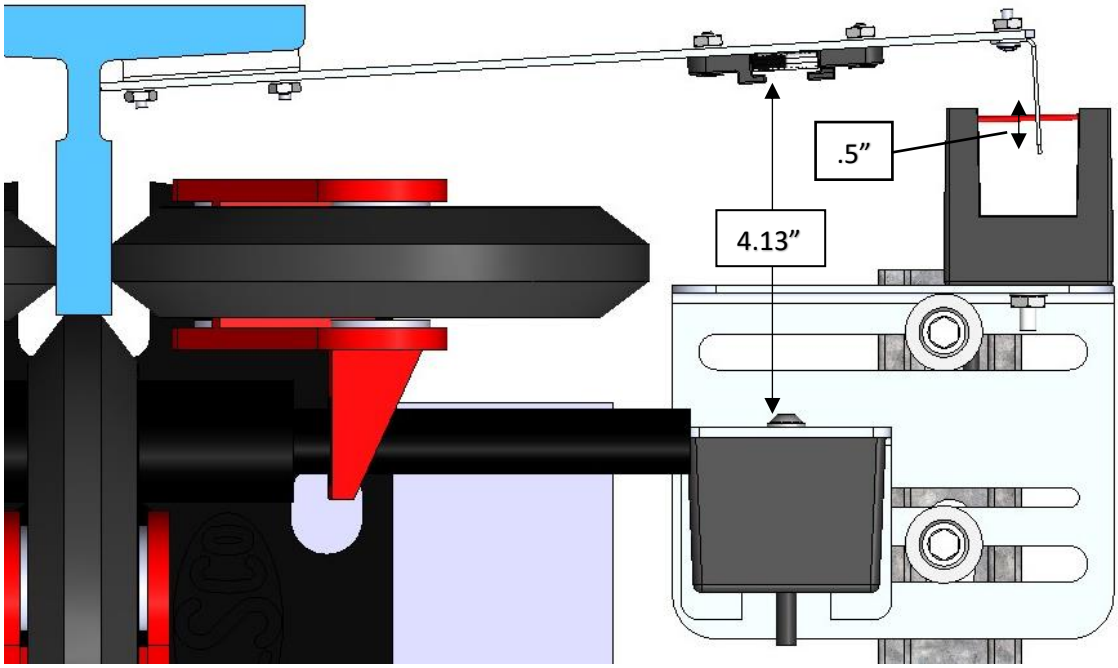


Figure 20: Camera Tuning

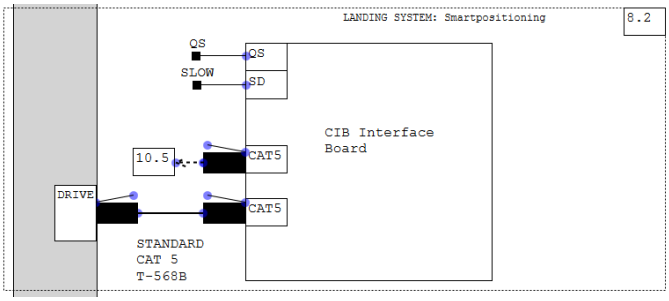
Power the APS camera via RJ45 to the car top’s SRU board so a red array can be seen on the tape to allow for alignment. If no red array is seen on tape, reset power by unplugging and reinserting to RJ45 Jack.

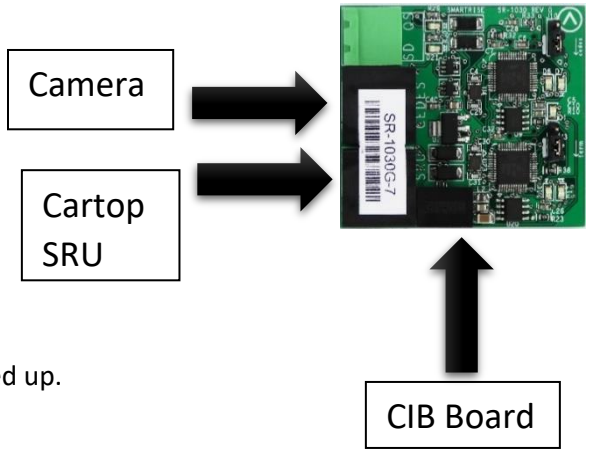
Verify

Proceed on inspection up/down the hoist way and adjust each tape guide clip to the correct in-line position with respect to the sensor assembly.

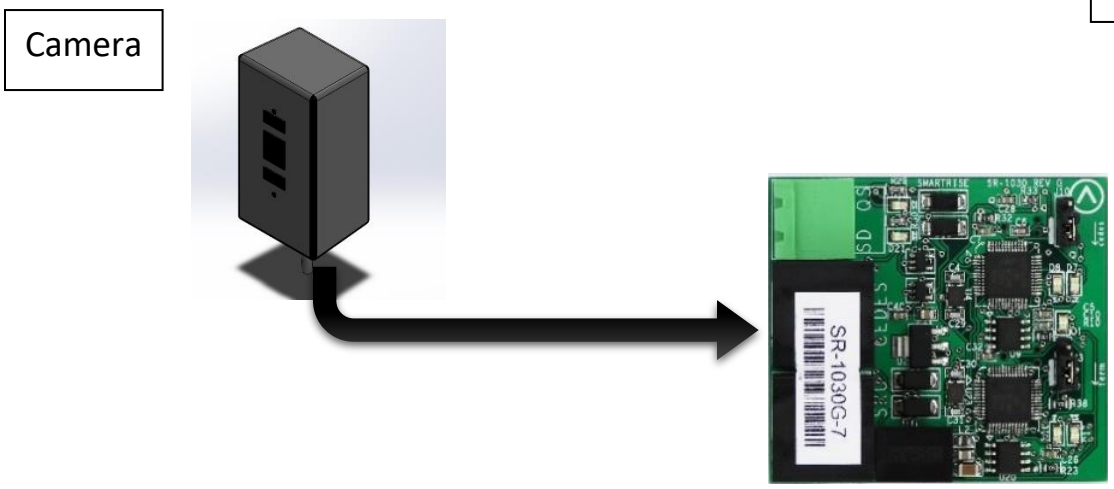
4.8 CAMERA CONNECTIONS

Connect the cable from the camera (with a CAT5 connector) to the CAT5 port on the CIB interface board, labeled as “CEDES” located in the cartop box.





The camera will power up when the cartop station is powered up.

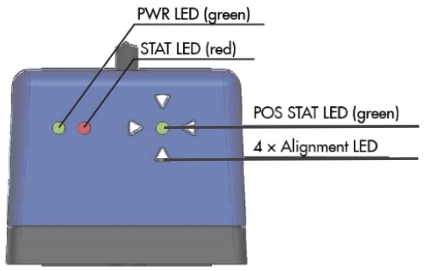


4.9 CAMERA ALLIGNMENT

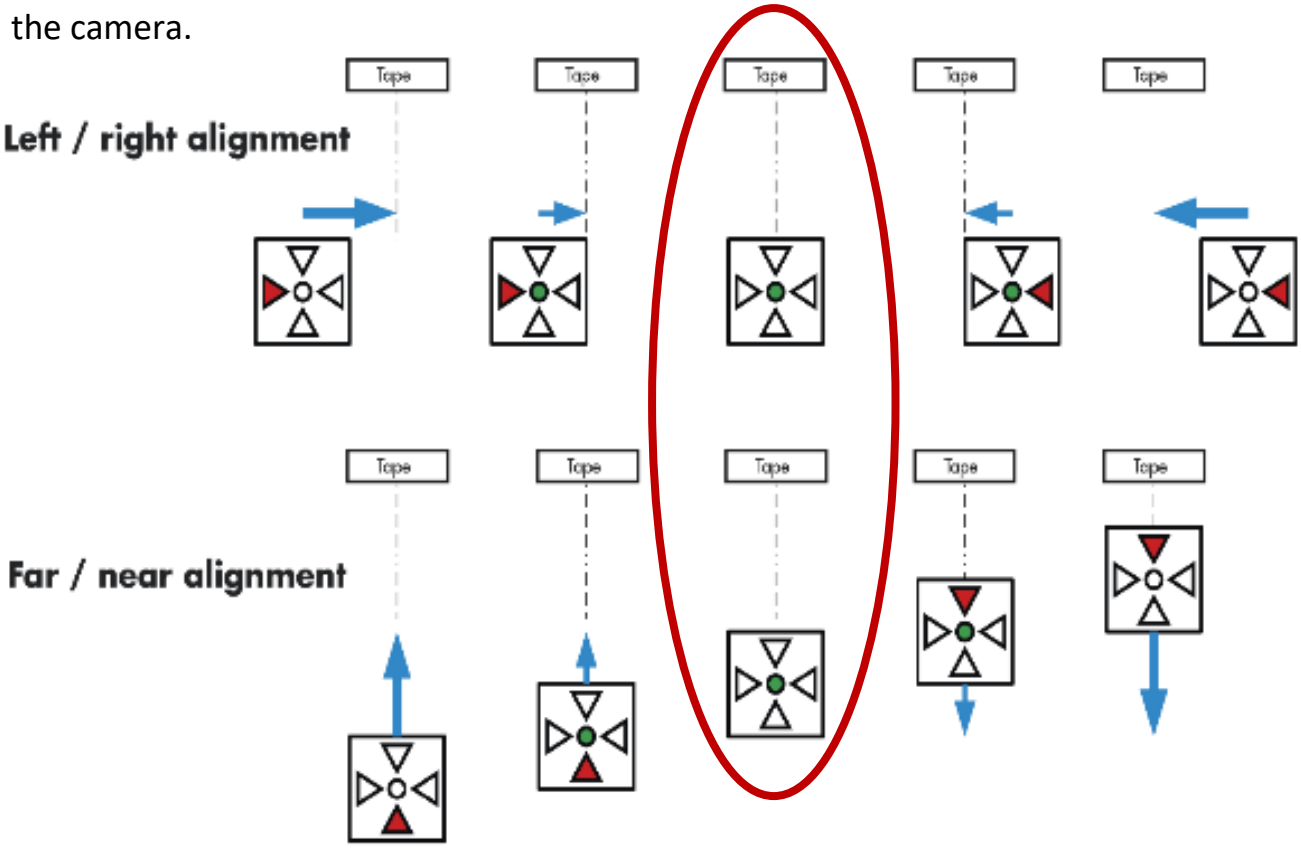
Use the Alignment and Position Status LEDs on the top of the Camera to align the camera to the tape.

Loosen the two mounting bolts on the camera mounting plate to adjust the cameras position.

The following illustration shows how to position the camera for proper alignment using the alignment LEDs.



When camera alignment is required, the red arrow LEDs indicate which way to move the camera.



<u>Left / Right Alignment:</u> Using the directional arrows on the top of the camera, move the camera left or right until only the green POS STAT is on.

<u>Far / Near Alignment:</u> Using the directional arrows on the top of the camera, move the camera closer to or further away from the tape until only the green POS STAT is on.

Once the alignment is complete, tighten the camera mounting plate.

Run the car on inspection from terminal-to-terminal while watching the POS LED on the top of the camera to make sure that the camera is aligned with the tape for the entire length of travel.

As you travel up and down the hoistway, the red alignment arrow LED's may flash on and off. This is OK as long as the center green LED stays lit.

5.0 SRU

5.1 SOFTWARE

Your system comes with the latest updated software. Contact technical support at 916-457-5129 for software issues.

5.2 SETTING UP ETS POSITIONING

(Setting up ETS is only for Tractions, if it's a hydraulic elevator please skip this step and move on to Section 5.3)

To setup the ETS device, you need to adjust two parameters in the SRU menu. The parameters can be found under the Setup menu as:

SETUP | ETS SETUP | SET UETS POSITION
SETUP | ETS SETUP | SET DETS POSITION

NOTE: On Software Versions 2.46 or higher, you are not required to put in the ETS values before the learn process.

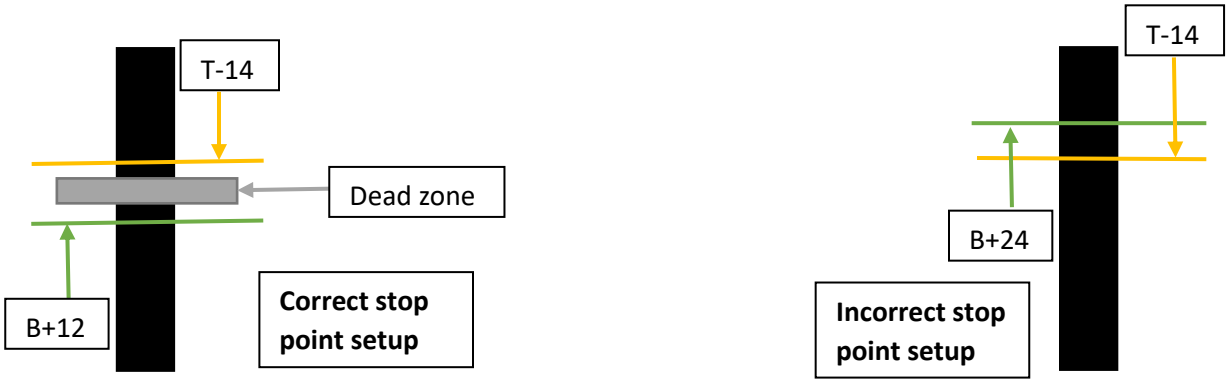
Older Smartrise controllers used hoistway switches or magnets near the top and bottom terminals to perform ETS. These have been replaced by parameters which act as "virtual hoistway switches".

Set the UETS POSITION parameter to a value indicating where a physical ETS switch would be placed at the top of the hoistway. When the car passes this position going up, the ETS device will open the SF1 relay if the car has failed to slowdown for the top terminal.

Set the DETS POSITION parameter to a value indicating where a physical ETS switch would be placed at the bottom of the hoistway. When the car passes this position going down, the ETS device will open the SF1 relay if the car has failed to slowdown for the bottom terminal.

5.3 Learning the Hoistway

1. Bring the car to the bottom door zone on inspection.
2. On the MR SRU board, turn on DIP #2 on DIP A. The main screen should switch from Normal to Learn. Ensure MR inspection is in the normal state.
3. Navigate to Learn Mode commands menu located in **MAIN MENU | SETUP |LEARN MODE COMMANDS**
4. Begin the LEARN MAGNETS and the car will stop at the top floor door zone.



Note: After learning the hoistway, ensure that the dead zone is in-between the up stop point of a floor and the down stop point of that same floor by going to SETUP | FLOOR LEVEL. (Example: If the up stop point is set for B+24 for floor 2 and the down stop point for floor 2 is set for T-14, both the stop points are overlapping the other which will cause the car to constantly relevel).

5.4 LEARNING THE NTS

IMPORTANT!! The following steps describe how to learn the NTS slowdown approaches (Traction) or input the NTS Values (Hydro). This cannot be done until the car is able to run on Normal operation.

5.4A Traction

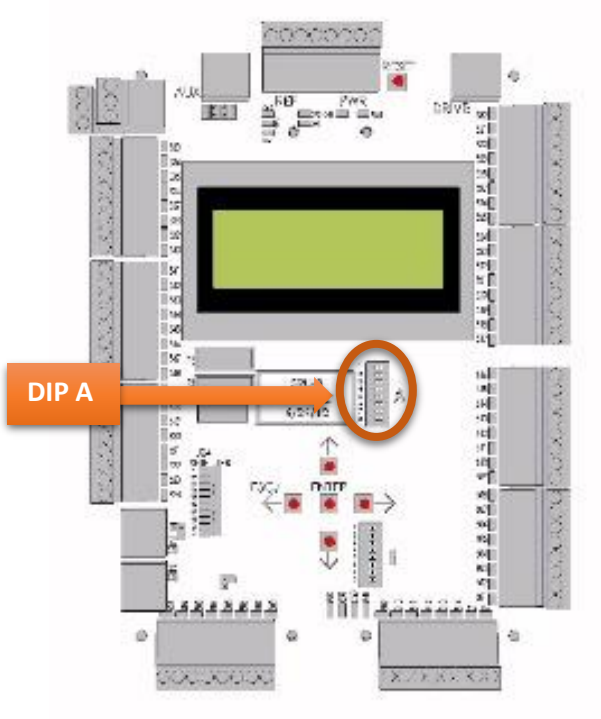
Additionally, the NTS slowdown approaches should not be learned until your speeds and slowdowns are fully configured as adjusting these parameters may necessitate the relearning of the NTS slowdown approaches.

Before learning the NTS you will have to adjust the highest speed profile slowdown distance. Find a value where the car achieves at least 2 seconds of leveling without overshooting the floor, also known as an aggressive stop. To do this, go to your highest speed profile and adjust the slowdown distance

(Main Menu > Setup > Speeds and Slowdowns > Highest speed profile > Slowdowns). You will then learn the UNTS/DNTS slowdown approach. After learning your NTS you will increase your slowdown to 3-4 seconds of leveling.

To learn the **UNTS** approach:

1. Bring the car to the Bottom landing (or low enough that a run to the top will be at contract speed).
2. On the MR SRU, turn on **DIP #3** (disable doors) and **DIP #4** (UNTS Learn) on DIP A (see figure to right).
3. Enter a car call to the top landing.
4. After the car stops, wait at least 5 seconds and then turn **DIP #4** off.
5. You can leave **DIP #3** on for testing.



To learn the **DNTS** approach:

1. Bring the car to the Top landing (or high enough that a run to the bottom will be at contract speed).
2. On the MR SRU, turn on **DIP #3** (disable doors) and **DIP #5** (DNTS Learn) on DIP A (see figure to right).
3. Enter a car call to the bottom landing.
4. After the car stops, wait at least 5 seconds and then turn **DIP #5** off.
5. You can leave **DIP #3** on for testing.

5.4B Hydraulic

After learning the hoistway:

1. Find out what the distance is for the bottom of your top door zone magnet is by going into main menu, status, magnets, and scroll up to the top floor.
2. Then you will go into setup, NTS Set up, and place your UNTS and DNTS.
3. Once that is done, you will place your TSRD in the set-up menu to where you would place your UET. Please see chart below.

Hoistway Switch Positioning Table		
Contract Speed	**UET (UETS) Inches Below**	**DET (DETS) Inches Above**
10 - 100	9”	9”
101 - 125	10”	10”
126 - 150	12”	12”
151 - 175	14”	14”
176 - 200	16”	16”

5.5 TESTING PROCEDURES

TESTING NORMAL TERMINAL STOPPING (NTS) FOR TRACTION ELEVATORS

To verify that the NTS system is working, we need to force a failure of the normal stopping means and verify that the car still stops properly at both the top and bottom terminals. The normal stopping means is controlled by the eight speed profiles (S1-S8) located in the SRU menu under:

SETUP | SPEEDS & SLOWDOWNS

Find the speed profile associated with the contract speed run. That will be the speed profile whose Speed value is equal to the Contract Speed value. We will refer to this speed profile as S#.
(Example: Contract speed – 300FPM and S3 – 300FPM).

Write down the current slowdown distance for S# which can be found by navigating on the main menu to:

SETUP | SPEEDS & SLOWDOWNS | S# | S# SLOWDOWNS | S# ALL

You will need to restore this value after the test is complete.

To test the NTS device at the **top** terminal, do the following:

1. Disable car door operation by turning on DIP switch A3
2. Move the car, on Normal operation, to the **bottom** floor.
3. Record the current slowdown distance for S# UP Normal _____ .
4. Reduce the slowdown distance for speed profile S# to 00001 count.
5. Use the Debug menu to enter a car call to the **top** floor.
6. Verify that MR SRU output "**Quick Stop Out"** goes off as the car approaches the top floor. The transition of this output from ON to OFF while the car is in motion indicates the occurrence of an NTS stop.
7. Verify that the car stops at the terminal landing.
8. Restore the slowdown distance for speed profile S# to its previous value.

To test the NTS device at the **bottom** terminal, do the following:

1. Disable car door operation by turning on DIP switch A3
2. Move the car, on Normal operation, to the **top** floor.
3. Record the current slowdown distance for S# DOWN Normal _____ .
4. Reduce the slowdown distance for speed profile S# to 00001 count.
5. Use the Debug menu to enter a car call to the **bottom** floor.
6. Verify that MR SRU output "**Quick Stop Out"** goes off as the car approaches the bottom floor. The transition of this output from ON to OFF while the car is in motion indicates the occurrence of an NTS stop.
7. Verify that the car stops at the terminal landing.
8. Restore the slowdown distance for speed profile S# to its previous value.

TESTING EMERGENCY TERMINAL STOPPING (ETS) FOR TRACTION ELEVATORS

To verify that the ETS system is working, we need to simulate a failure of the NTS device and the normal speed control system. This can be accomplished by jumping out the quick stop (QS) signal from the cartop and by setting the slowdown parameters of the normal stopping means to a very small value.

Find the speed profile associated with the contract speed run. That will be the speed profile whose Speed value is equal to the Contract Speed value. We will refer to this speed profile as S# (Example: S3).

Write down the current slowdown distance for S# which can be found by navigating on the menu system to:

SETUP | SPEEDS & SLOWDOWNS | S# | S# SLOWDOWNS | S# ALL

You will need to restore this value after the test is complete.

To test the ETS device at the **top** terminal, do the following:

1. Start with car on Normal operation at the **bottom** floor.
2. Turn on MR DIP switch A3 to disable car door operation.
3. Record the current slowdown distance all for S# ALL _____ .
4. Reduce the slowdown distance all for speed profile S# to 00001 count.
5. Remove the quick stop wire coming from the traveler cable to the QS terminal (refer to your job prints).
6. Place a jumper wire from the M24 power bus to the terminal from which the QS wire was removed.
7. Use the Debug menu to enter a car call to the **top** floor.
8. Verify the car does an emergency stop when it passes the point set by the UETS POSITION parameter.
9. This test may cause the top final limit switch to open and cause the counterweight to hit the buffer. If so, you will need to jump out the top final limit switch before you can move the car out of the overhead.
10. Restore the slowdown distance for speed profile S# to its previous value.
11. Remove the jumper wire from the QS terminal and replace it with the quick stop wire from the traveler cable.

To test the ETS device at the **bottom** terminal, do the following:

1. Start with car on Normal operation at the **top** floor.
2. Turn on MR DIP switch A3 to disable car door operation.
3. Record the current slowdown distance for S# ALL _____ .
4. Reduce the slowdown distance for speed profile S# to 00001 count.
5. Remove the quick stop wire coming from the traveler cable to the QS terminal (refer to your job prints).
6. Place a jumper wire from the M24 power bus to the terminal from which the QS wire was removed.
7. Use the Debug menu to enter a car call to the **bottom** floor.
8. Verify the car does an emergency stop when it passes the point set by the DETS POSITION parameter.
9. This test may cause the bottom final limit switch to open and cause the car to hit the buffer. If so, you will need to jump out the bottom final limit switch before you can move the car out of the pit.
10. Restore the slowdown distance for speed profile S# to its previous value.
11. Remove the jumper wire from the QS terminal and replace it with the quick stop wire from the traveler cable.

TESTING NORMAL TERMINAL STOPPING (NTS) FOR HYDRAULIC ELEVATORS

To test the NTS device at the **top** terminal, do the following:

1. Disable car door operation by turning on DIP switch A3.
2. Bring the car to bottom door zone.
3. Enable the logging of NTS alarms.
    a. DEBUG | BINARY PARAMETERS | 00-017.0 = on.
4. Verify that UNTS has a valid value by checking (and setting if needed) its virtual switch position:
    a. SETUP | NTS SETUP | UNTS POSITION
    b. The value should be an absolute position just below the top floor door zone. You can find the learned positions of the door zone magnets under STATUS | MAGNETS. Find the top door zone and subtract your normal slowdown distance. For example, if your top door zone is at 30 feet and your normal slowdown is 1 foot 6 inches then set your UNTS POSITION to 28'06.00".
5. Disable the Normal Slowdown in the up direction:
    a. Navigate to SETUP | SPEEDS AND SLOWDOWNS | S1 | S1 SLOWDOWNS | S1 UP NORMAL
    b. Write down the current value _____ . You'll need to restore this value after the test is complete.
    c. Set the value to 0001.
6. From the DEBUG menu, enter a car call to the top floor.
7. When car passes UNTS POSITION point, the CIB board on the cartop will drop the NTS/QS signal causing the car to slowdown and stop normally at the top floor.
8. Re-enable the Normal Slowdown in the up direction:
    a. Navigate to SETUP | SPEEDS AND SLOWDOWNS | S1 | S1 SLOWDOWNS | S1 UP NORMAL
    b. Set it to the value that you wrote down when you disabled it.

To test the NTS device at the **bottom** terminal, do the following:

1) Disable car door operation by turning on DIP switch A3.
2) Bring the car to the top door zone.
3) Verify that DNTS has a valid value by checking (and setting if needed) its virtual switch position:
    a) SETUP | NTS SETUP | DNTS POSITION
    b) The value should be an absolute position just above the bottom floor door zone. Since the bottom door zone's lower limit is always 0 feet 0 inches, the DNTS POSITION will actually be the same as your Normal Slowdown in the Down direction. If your Normal Slowdown Down is 2 feet then set this as your DNTS POSITION. You might want to add 3 inches to the value since a typical DZ magnet is 6 inches long and you usually want the car to stop around the middle of the magnet which would be 0 feet, 3 inches.
    c) Controller will fault with an "F234:Set NTS" if an attempt is made to run on automatic without the parameters being set to valid values.
4) Disable the Normal Slowdown in the down direction:
    a) Navigate to SETUP | SPEEDS AND SLOWDOWNS | S1 | S1 SLOWDOWNS | S1 DOWN NORMAL
    b) Write down the current value _____ . You'll need to restore this value after the test is complete.
    c) Set the value to 0001.

5) From the DEBUG menu, enter a car call to the bottom floor.
6) When car passes DNTS POSITION point, the CIB board, on the cartop, will drop the NTS/QS signal causing the car to slowdown, and stop normally at the bottom floor
7) Re-enable the Normal Slowdown in the down direction:
    a) Navigate to SETUP | SPEEDS AND SLOWDOWNS | S1 | S1 SLOWDOWNS | S1 DOWN NORMAL
8) Set it to the value that you wrote down when you disabled it.

Note: ETS is not required for Hydraulic Elevators with APS landing systems. A17.1 code only requires it if contract speed is greater than 200 fpm.

TESTING TERMINAL SPEED REDUCING DEVICE (TSRD) FOR HYDRAULIC ELEVATORS

1) Disable car door operation by turning on DIP switch A3.
2) Bring the car to the bottom door zone.
3) Verify that TSRD has a valid value by checking (and setting if needed) its virtual switch position:
    a) SETUP | TSRD SETUP
    b) The value should be an absolute position just below the top floor door zone. You can find the learned positions of the door zone magnets under STATUS | MAGNETS. If the car passes this point at more than 80% of contract speed, power will be cut to the valves and pump motor to prevent hitting the stop ring at contract speed.
4) Disable the Normal Slowdown in the up direction:
    a) Navigate to SETUP | SPEEDS AND SLOWDOWNS | S1 | S1 SLOWDOWNS | S1 UP NORMAL
    b) Write down the current value _____ . You'll need to restore this value after the test is complete.
    c) Set the value to 0001.
5) Disable NTS by placing a jumper between M24 and the NTS input terminal on the machine room SRU board.
6) From the DEBUG menu, enter a car call to the top floor.
7) The car should trip with an "F237:TSRD Overspeed" fault upon passing the TSRD position.

CAR BUFFER TEST

The purpose of this test is to run the car down, at full speed, into the buffer, under power, without dropping the brake, thus causing the car to hit its buffer at full rated speed. To perform this test, do the following steps:

1. Start with car on Normal operation at the **top** floor.
2. Turn on MR DIP switch A3 to disable car door operation.
3. Record the current slowdown distance for all speed profiles that have non-zero speeds.
    a. Record original value of S1 All:_____
    b. Record original value of S2 All:_____
    c. Record original value of S3 All:_____
    d. Record original value of S4 All:_____
    If more than four speed profiles are in use then record them also.
4. Reduce the slowdown distance for all in-use speed profiles to 00001 count.
5. Record the value of the DETS position parameter which can be found under SETUP | ETS SETUP | DETS POSITION.

   a. Original value of DETS POSITION: _____
6. Set DETS POSITION to 00001.
7. Disable the final limit switches by placing a jumper wire between terminal block SF1 and terminal block PIT on the MR DIN rail.
8. Place a jumper from QS to M24.
9. On the SRU menu, navigate to SETUP | TIMERS | BRAKE DROP (FAULT) and record its current value.
   a. Original value of BRAKE DROP (FAULT) : _____
10. Change the "Brake Drop (Fault)" parameter to its maximum value of 2.55 seconds.
11. **WARNING:** Ensure that no one is in or on top of the car and in the hoistway before continuing.
12. Use the Debug menu to enter a car call to the **bottom** floor.
13. Car will run at full speed into its buffer.
14. Place car on Inspection after it strikes the buffer.
15. Run car on Inspection out of the pit and up to the bottom floor door zone.
16. Restore the "Brake Drop (Fault)" parameter to its original value.
17. Remove the jumper wire between SF1 and PIT.
18. Restore the DETS POSITION parameter to its original value.
19. Restore the slowdown distance parameters for all in-use speed profiles to their original values.

COUNTERWEIGHT BUFFER TEST

The purpose of this test is to run the car up, at full speed, above the top terminal, under power, without dropping the brake, thus causing the counterweight to hit its buffer at full rated speed.

1. Start with car on Normal operation at the **bottom** floor.
2. Turn on MR DIP switch A3 to disable car door operation.
3. Record the current slowdown distance for all speed profiles that have non-zero speeds.
   a. Record original value of S1 All:_____
   b. Record original value of S2 All:_____
   c. Record original value of S3 All:_____
   d. Record original value of S4 All:_____
   If more than four speed profiles are in use then record them also.
4. Reduce the slowdown distance for all in-use speed profiles to 00001 count.
5. Record the value of the UETS position parameter which can be found under SETUP | ETS SETUP | UETS POSITION.
   a. Original value of UETS POSITION: _____
6. Set UETS POSITION to 65530.
7. Disable the final limit switches by placing a jumper wire between terminal block SF1 and terminal block PIT on the MR DIN rail.
8. Place a jumper from QS to M24.
9. On the SRU menu, navigate to SETUP | TIMERS | BRAKE DROP (FAULT) and record its current value.
   a. Original value of BRAKE DROP (FAULT) : _____
10. Change the "Brake Drop (Fault)" parameter to its maximum value of 2.55 seconds.
11. **WARNING:** Ensure that no one is in or on top of the car and in the hoistway before continuing.
12. Use the Debug menu to enter a car call to the **top** floor.
13. Counterweight will strike its buffer at full contract speed.
14. Place car on Inspection after it strikes the buffer.
15. Run car on Inspection, out of the overhead and down to the top floor door zone.

16. Restore the "Brake Drop (Fault)" parameter to its original value.
17. Remove the jumper wire between SF1 and PIT.
18. Restore the UETS POSITION parameter to its original value.

LOSS OF TRACTION TEST

4. Start with the car on Normal Operation (at any floor)
5. Go to Adjust Parameters and enter 13-164. Record original x-value here: _____
6. Change x-value for parameter 13-164 to x00
7. Place a car call through the Debug Menu to any floor. The controller will fault out with a F71 Speed Deviation, simulating a loss of traction
8. When done, change parameter 13-164 back to its original x-value

5.6 TROUBLESHOOTING

If a "F233: Position SYS" fault occurs on the MR SRU board, use the following table to isolate the issues:

F233	Position Sys	The CEDES APS landing system is in a fault condition
Causes	**Extra Byte 1:** 1: Comm loss – CT SRU is not receiving data from Interface Board (CIB). **Extra Byte 2: CEDES fault number:** 0: No fault 1: Invalid NTS Data 2: No Comm – The CIB is receiving bad or no data from the CT SRU. 3: No Comm B to A – The A processor on the CIB isn't communicating with the B processor on the CIB. 4: No Comm A to B – The B processor on the CIB isn't communicating with the A processor on the CIB. 5: No Comm APS A – The A processor on the CIB is not receiving data from the SAP landing system. 6: No Comm APS B – The B processor on the CIB is not receiving data from the SAP landing system. 7: Position mismatch A with B – The two cameras in the SAP landing system are reporting substantially different positions. 8: APS Error A – Tape alignment error being reported by Camera A of the SAP landing system. 9: APS Error B – Tape alignment error being reported by Camera B of the SAP landing system.	

Remedies	Extra Byte 1: 1: Comm loss - Replace the Interface Board (CIB). Replace CT SRU. Extra Byte 2: Camera fault number: 0: No fault 1: Invalid NTS Data – Need to do NTS learn run(s). 2: No Comm – Check CAT5 cable. Replace CIB. Replace CT SRU. 3: No Comm B to A – Replace CIB. 4: No Comm A to B – Replace CIB. 5: No Comm APS A – Check CAT5 cable. Replace the Camera. Replace CIB. 6: No Comm APS B – Check CAT5 cable. Replace the Camera. Replace CIB. 7: Position mismatch A with B – Check tape for bad alignment or damage. Replace the Camera. 8: APS Error A – Check tape for bad alignment or damage. Replace the Camera. 9: APS Error B – Check tape for bad alignment or damage. Replace the Camera.

3

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