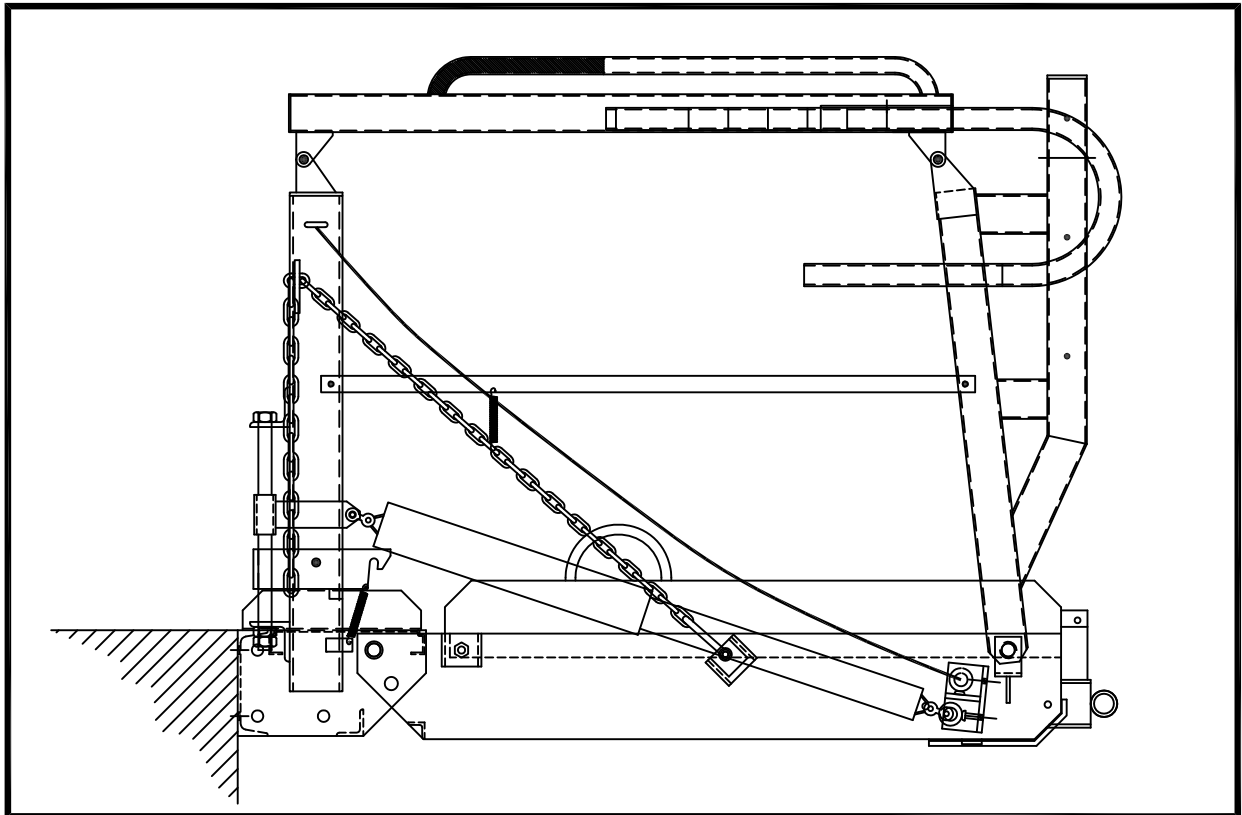


# INSTRUCTION MANUAL OPERATION AND MAINTENANCE OF TCG-2500



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- INTRODUCTION
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- DRAWINGS & SPECIFICATIONS
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## *INTRODUCTION*

This product has been inspected and meets Carbis' Quality Control Standards. It is important that the information contained in this manual be reviewed before operating the unit, including the following:

- Inspect unit upon delivery for shipping damage or loose bolts. All fastening hardware that has been factory installed has been done so to remain tight; if any fastening hardware, whether factory or field installed, has been loosened, it is imperative that it be tightened before using the product.
- WARNING: This unit can conduct electricity. It is the responsibility of the customer to see that this unit is grounded before any operation is performed, and that all safety codes are followed as required.
- ATTENTION: **AVOID PROBLEMS WITH STAINLESS STEEL BOLTS.** Keep bolts and nuts free of grime and others contaminants that may get into threads. Lubricate stainless steel bolts and nuts prior to tightening. Avoid the use of impact speed wrenches. If one is used, a slower speed will allow heat to dissipate as the connection is tightened.

## *TCG-2500 DESCRIPTION* SEE DRAWING TCG-2500-STD

The TCG-2500 Series Gangway consists of a base tread that is either fixed mounted directly to a platform, horizontally pivot mounted or track mounted, and a vertically articulating gangway system.

- A platform extension with an extension handle is mounted under the main gangway walk surface, and telescoping handrails are mounted on the top handrail.
- The articulating gangway stair stringers pivot about the base tread, and the gangway handrails pivot about the base tread uprights.
- Bumpers are mounted on the leading edge of the telescoping section.
- A foot lock mounted on the base tread holds the gangway in the upright stored position.
- Adjustable chain stops attached to the stringers and supported by the base tread uprights hold the gangway in desired position anywhere within the range of horizontal to 15 degrees above horizontal; in some cases, the range extends to 15 degrees below.
- Covered springs mounted between the uprights and the stringers provide tension adjustment to minimize the push/pull forces required to articulate the gangway.
- A pull rope aids in returning the gangway to the upright stored position, typically 90 degrees above horizontal.
- The outboard uprights of the gangway support the outer end of the top and mid rails, and serve as a support for safety cages.
- Where the gangway is powered by a source other than by hand, see separate manual for information on power equipment description, operation, and maintenance.

# OPTIONAL TCG TRACK AND CARRIAGE

## DESCRIPTION

SEE DRAWING STD-TRACK

The track and carriage system consists of a single track, or multiple tracks, that bolt to the face of a fixed platform structure, and a gangway base tread mounted on a carriage that rolls on the track(s).

- Each track section consists of a back mounting plate, a top angle to capture the top rollers, and track angle, apex up for V-grooved wheels, welded to support tubes.
- A stop rod inserted thru end holes in the top angle prevents the carriage from rolling past the end of the track.
- The main carriage assembly consists of a plate weldment with top and bottom rollers mounted at each end. The top rollers ride on the vertical inside leg of the top angle, and the bottom rollers ride on the bottom outside face of the carriage mounting plate that is bolted to the backside of the gangway.
- Exposed top rollers at each end are gapped from the vertical outside leg of the top angle, and they are used to prevent the bottom rollers from jumping out of position where lighter gangways without cages tend to lean back towards the platform.
- The carriage wheel assemblies consist of V-grooved wheels supported by shafts with end collars mounted on support weldments that bolt to the base tread ends. The wheels have sufficient side play within the supports so they can “float” side to side to compensate for variations along the length of the track angle.
- Where the carriage is powered by a source other than by hand, see separate manual for information on power equipment description, operation, and maintenance.

# OPTIONAL TCG PIVOT MOUNT

## DESCRIPTION

SEE DRAWING STD-PIVOT

The pivot mount system consists of a gangway base tread with a male pivot post mounted on the underside, and a tread extension mounted on the platform side of the tread.

- The male pivot post engages with a female pivot-mounting sleeve, and rests on a micarta wear pad.
- The range of pivot rotation is ten degrees each side of the center.
- Brackets that are bolted or welded to a platform, either surface mounted or under slung below the platform structure, support the pivot support bracket.
- The optional pivot mount system can also be modified to retrofit an existing pivot support bracket.

## OPERATION

The gangway should be in its stored position before spotting any vehicle.

1. Spot the vehicle to be accessed with the work area directly in front of the gangway.  
NOTE: For pivoted or track mounted gangways, pivot or roll the gangway to the desired position.
2. With the chain stops in the next to the last link, depress the foot lock pedal. This will release the gangway from its 90 degree stored position.
3. Place both hands on the top handrail and push outward while the foot lock pedal is depressed.  
CAUTION: KEEP HANDS CLEAR OF CHAIN WHILE GANGWAY IS IN MOTION.
4. After the gangway is in the working position, adjust the chains so that both chains equally support the gangway.

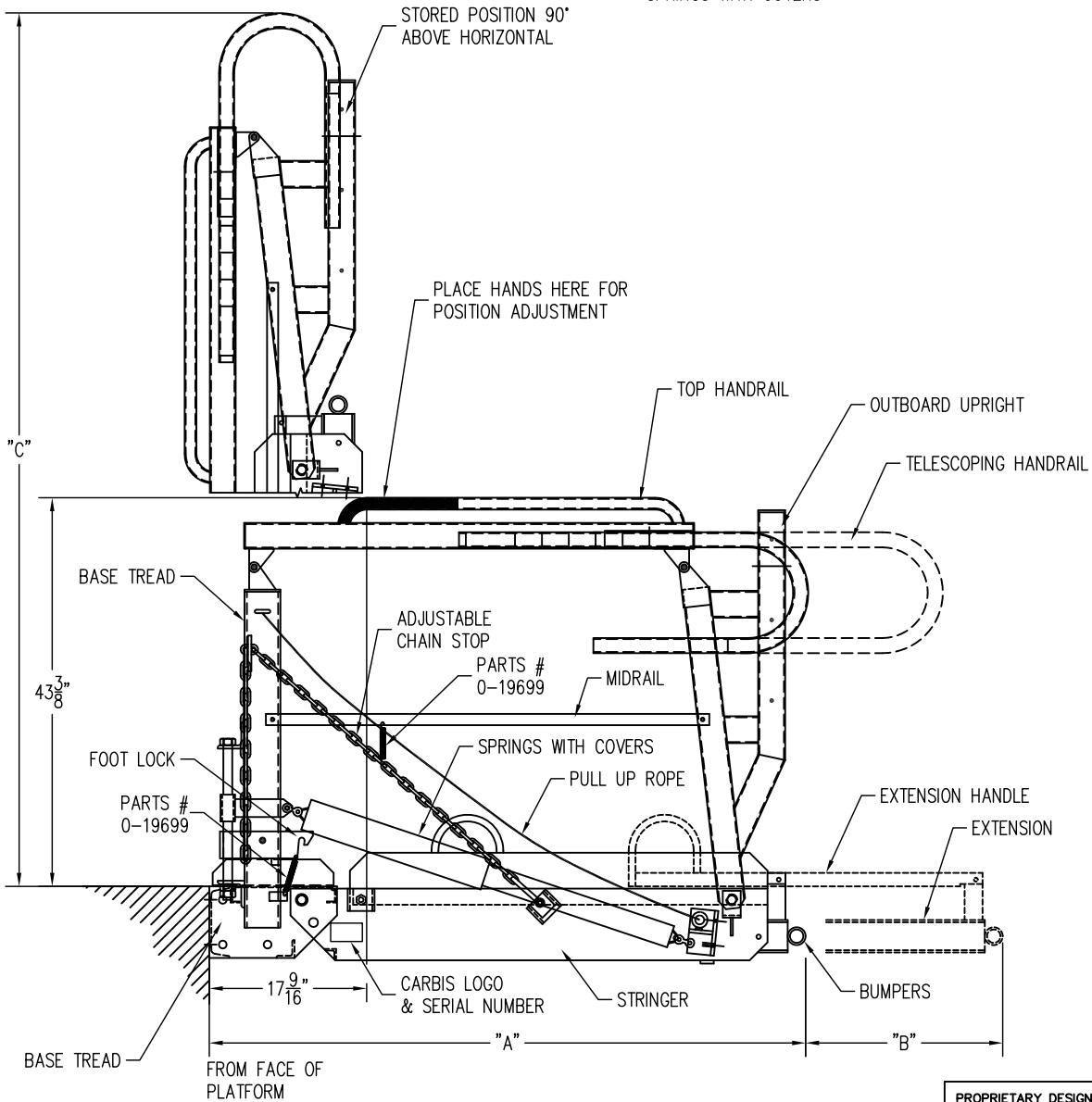
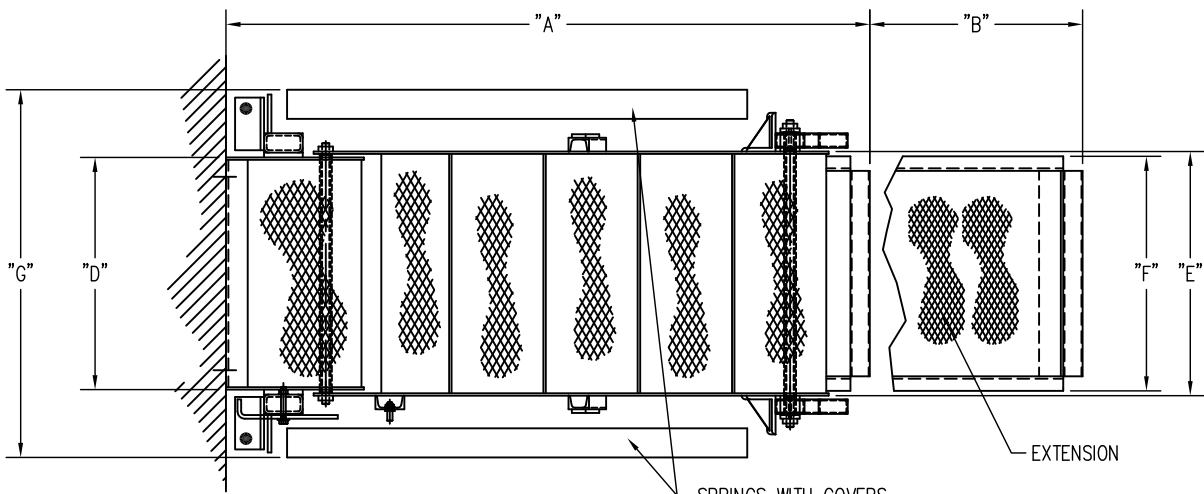
The normal operating range for a TCG-2500 is from horizontal to 15 degrees above horizontal. In some cases the range extends to 15 degrees below. The chain stop feature enables one man at a time to access vehicles without the unit having to rest on the vehicle.

5. When extending the gangway is necessary, use the extension handle on the right side of the gangway to extend the main walk surface to the edge of the vehicle being accessed. The extension handle should be secured in place in the grating.
6. After the extension has been set and locked in place, extend the telescoping handrails by removing the pins on top of the handrails and extend to the proper length. After the telescoping handrail is set to the proper length, secure it in place with the pins.

7. After performing the required work on the vehicle, retract the telescoping handrails and extension.
8. Use the pull up rope to return the gangway to its stored position. It is not necessary to depress the foot lock pedal when raising the gangway; however, make sure that the foot lock has engaged the bolt on the right side of the gangway.
9. Return the chains to the next to last link location for the next operator.

## MAINTENANCE

1. Visually inspect the unit before each use. Replace any damaged parts. Monthly inspection of the unit is recommended as a minimum. Harsh atmosphere and/or heavy use may dictate more frequent inspections and lubrication.
- 2 All fastening hardware that has been factory installed has been done so to remain tight; if any fastening hardware, whether factory or field installed, has been loosened, it is imperative that it be tightened before using the equipment.
- 3 Lubricate the pivot points on the handrails and main body with light oil such as WD-40.
- 4 Some units have flanged bearings with a grease fitting; track mounted units roll on v-grooved wheels that have grease fittings. These bearings and wheels should be lubricated with a lithium-based grease.
5. To adjust spring tension, see attached drawing titled "SPRING ADJUSTMENT".
6. Inspection of springs should include a check of the number of coils wound around the spring clip on each end. A minimum of two full coils is required.
7. For any assistance, replacement parts, comments, or questions, please call Carbis' Customer Service Department at 1-800-845-2387. Please have your model number and serial number available to expedite your request.



NOTE:  
SOME PARTS NOT SHOWN  
COMPLETELY FOR CLARITY.

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CUSTOMER			
TITLE <b>TCG-2500 SPECIFICATIONS</b>			
CUSTOMER PURCHASE ORDER NUMBER			
ALCO ORDER #	SCALE <b>NTS</b>	SHEET <b>1 of 2</b>	REV.
DRAWN DATE 5/20/10	CHECK DATE	FINAL CK. DATE	DRAWING NUMBER <b>TCG-2500-STD</b>



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MODEL NO.	A	C
TCG-2500-3	43"	74"
TCG-2500-4	55"	86"
TCG-2500-5	67"	98"
TCG-2500-6	79"	110"

SAMPLE MODEL NUMBER:  
TCG-2500-5-A

WIDTH	D	E	F	G
-A	24"	25 1/4"	24 1/4"	38"
-AN	18 1/4"	20"	19"	32 1/4"
-WA	44"	45 1/4"	44 1/4"	58"

ALL OPTIONAL MOUNTING ANGLES FOR ALL GANGWAYS ARE MADE OF STEEL.

**NOTE:** THE "A" IN THE WIDTH COLUMN DETERMINES THE MATERIAL OF THE GANGWAY. THE "A" MAY BE CHANGED TO "P", "G", OR "S", DEPENDING ON THE MATERIAL REQUIRED. SEE MATERIAL OPTIONS FOR SYMBOLS.

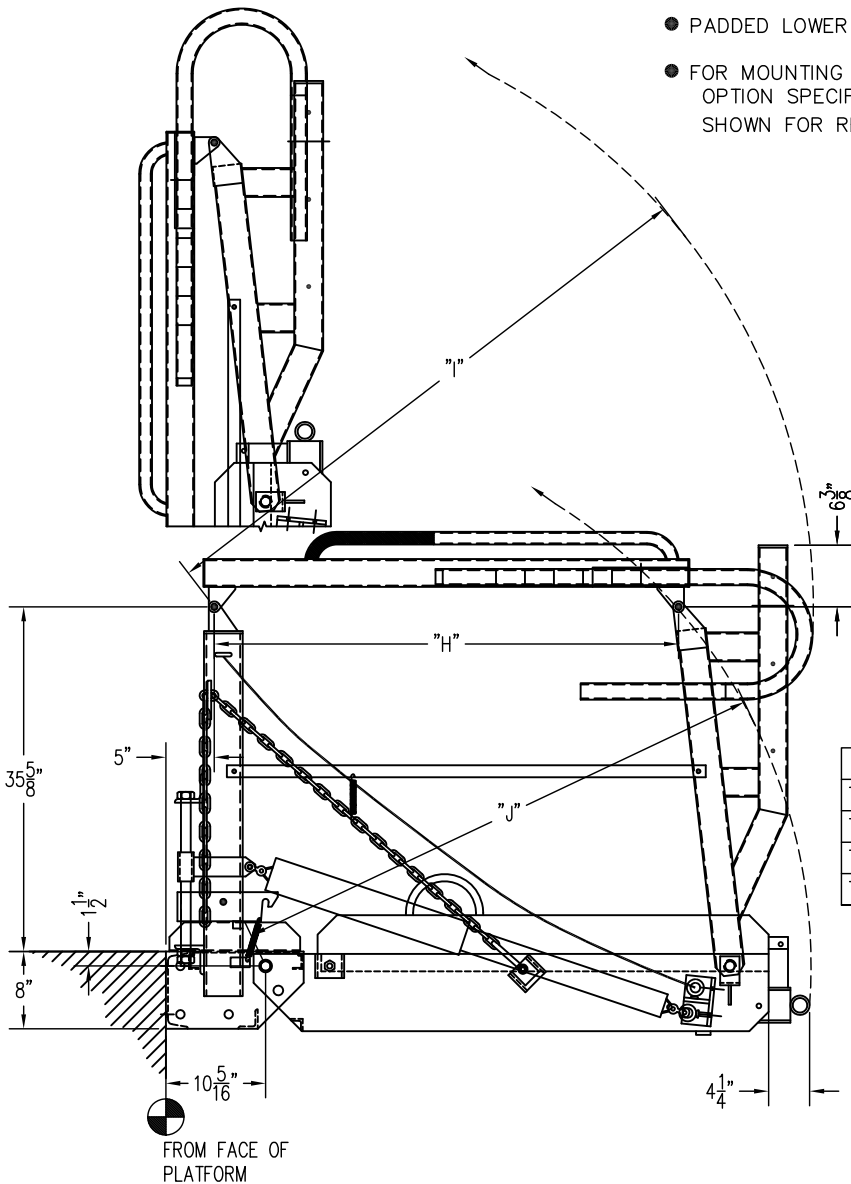
SPECIFICATIONS AND OPTIONS

- WALKING SURFACE OPTIONS  
OPEN METAL PLANK  
FIBERGLASS GRATING  
BAR GRATING
- MATERIAL OPTIONS  
S = MILL STEEL  
P = PRIMED STEEL  
G = GALVANIZED STEEL  
A = ALUMINUM

- COUNTERBALANCE OPTIONS  
SPRINGS (STANDARD)  
HYDRAULIC (OPTIONAL)  
PNEUMATIC (OPTIONAL)

NOTE: DEPENDING ON THE SIZE OF THE GANGWAY AND OPTIONS PURCHASED, STANDARD SPRING COUNTERBALANCE MAY NOT BE AVAILABLE FOR THAT GANGWAY.

- ALL ALUMINUM GANGWAYS WILL HAVE GALVANIZED STEEL BASE TREADS.
- AUTOMATIC FOOT LOCK IN 90° STORED POSITION
- PADDED LOWER EDGE PREVENTS VEHICLE DAMAGE
- FOR MOUNTING OPTIONS, SEE THE MOUNTING OPTION SPECIFICATION SHEET. VERTICAL MOUNT SHOWN FOR REFERENCE ONLY.



**LOAD CAPACITY**  
FIXED MOUNT: 500 LBS  
PIVOT MOUNT: 500 LBS  
TRACK MOUNT: 300 LBS

THE TCG-2500 GANGWAY MEETS OR EXCEEDS OSHA REGULATIONS AS WE INTERPRET THEM.

MODEL NO.	H	I	J
TCG-2500-3	24"	38"	32 1/4"
TCG-2500-4	36"	50"	44 1/4"
TCG-2500-5	48"	62"	56 1/4"
TCG-2500-6	60"	74"	68 1/4"

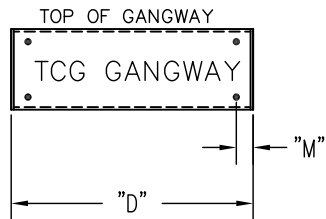
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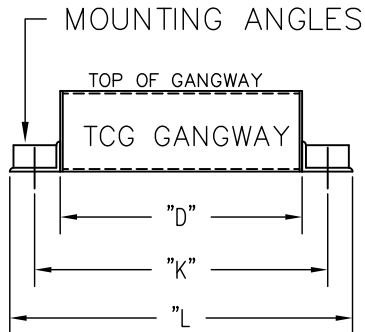
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DRAWN SWT DATE 5/19/10	CHECK DATE	FINAL CK. DATE	DRAWING NUMBER <b>TCG-2500-STD</b>



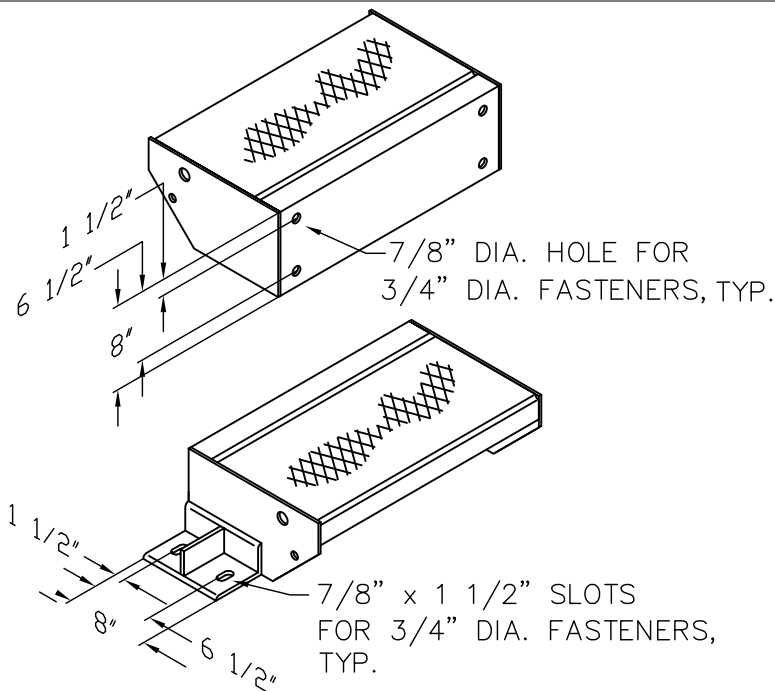
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VERTICAL MOUNT  
(STANDARD)



OPTIONAL  
HORIZONTAL MOUNT

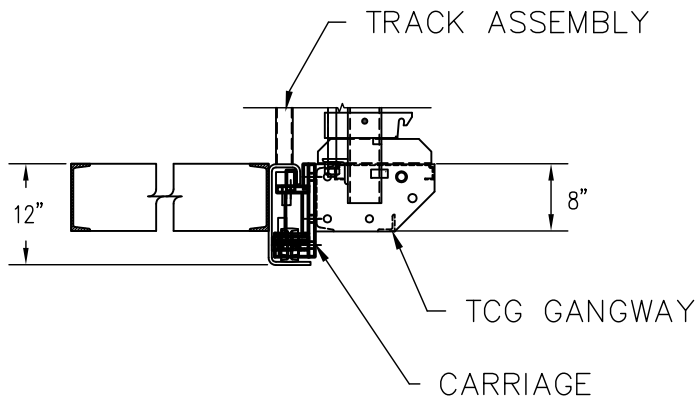


MODEL NUMBER	WIDTHS											
	-A				-AN				-WA			
	D	K	L	M	D	K	L	M	D	K	L	M
TCG-1000	24"	31"	34"	2"	18 1/4"	25 1/4"	28 1/4"	2"	44"	51"	54"	3 1/4"
TCG-2000	24"	31"	34"	2"	18 1/4"	25 1/4"	28 1/4"	2"	44"	51"	54"	3 1/4"
TCG-2500	24"	31"	34"	2"	18 1/4"	25 1/4"	28 1/4"	2"	44"	51"	54"	3 1/4"

MATERIAL CHART

- S = MILL STEEL
- P = PRIMED STEEL
- G = GALVANIZED STEEL
- A = ALUMINUM

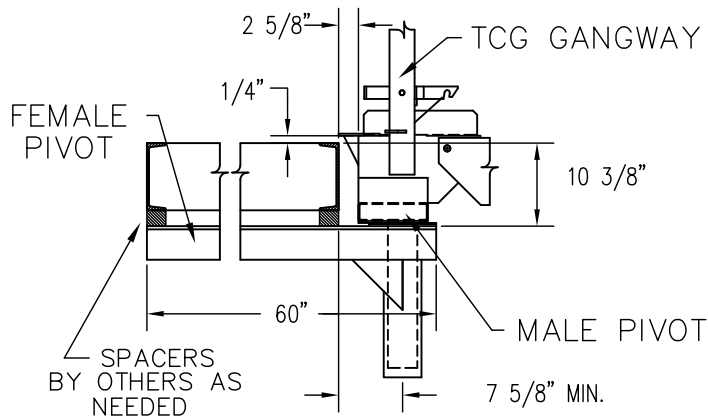
NOTE: THE "A" IN THE WIDTH COLUMN DETERMINES THE MATERIAL OF THE GANGWAY. THE "A" MAY BE CHANGED TO "P", "G", OR "S", DEPENDING ON THE MATERIAL REQUIRED. SEE MATERIAL CHART FOR SYMBOLS.



OPTIONAL TRACK MOUNT  
SEE DRAWING STD-TRACK

FOR OVERALL LENGTH OF GANGWAY, AT HORIZONTAL POSITION, ADD 5 1/8" TO THE "A" DIMENSION ON THE TCG SPECIFICATION SHEET.

4 3/19/2002



OPTIONAL PIVOT MOUNT  
SEE DRAWING STD-PIVOT

FOR OVERALL LENGTH OF GANGWAY, AT HORIZONTAL POSITION, ADD 2 5/8" TO THE "A" DIMENSION ON THE TCG SPECIFICATION SHEET. 60" LENGTH FOR FEMALE PIVOT CAN BE TRIMMED TO SHORTER LENGTH IF REQUIRED.

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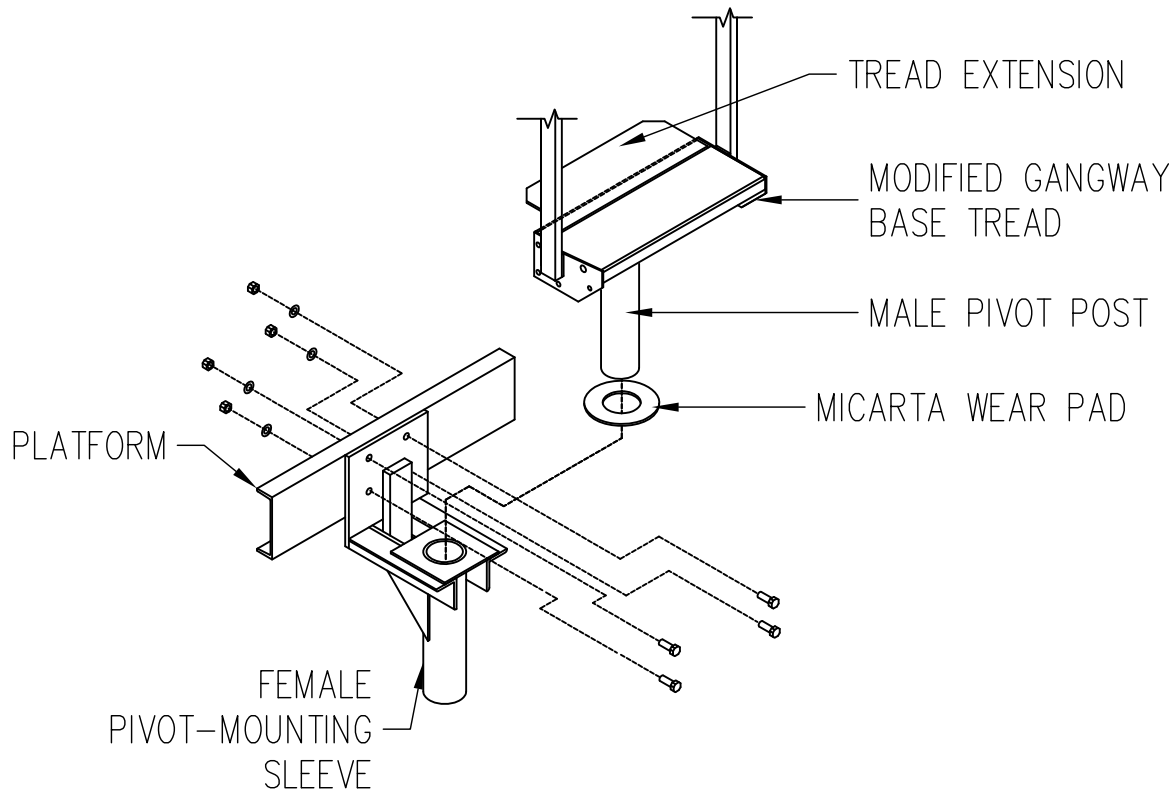
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CUSTOMER PURCHASE ORDER NUMBER			
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DRAWN DATE 5/19/10	CHECK DATE	FINAL CK. DATE	DRAWING NUMBER STD-MNT-R6

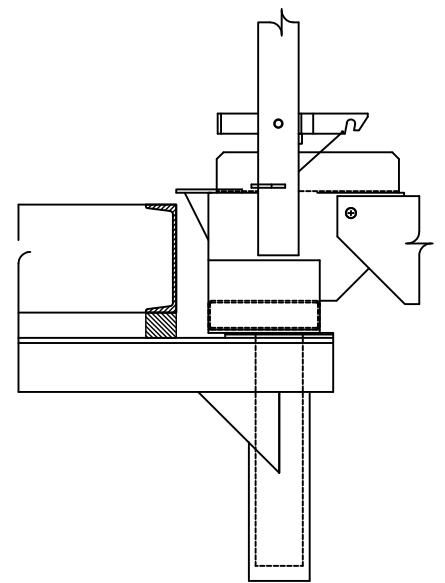


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# TCG-PIVOT MOUNT



FACE MOUNT



UNDERSLUNG MOUNT

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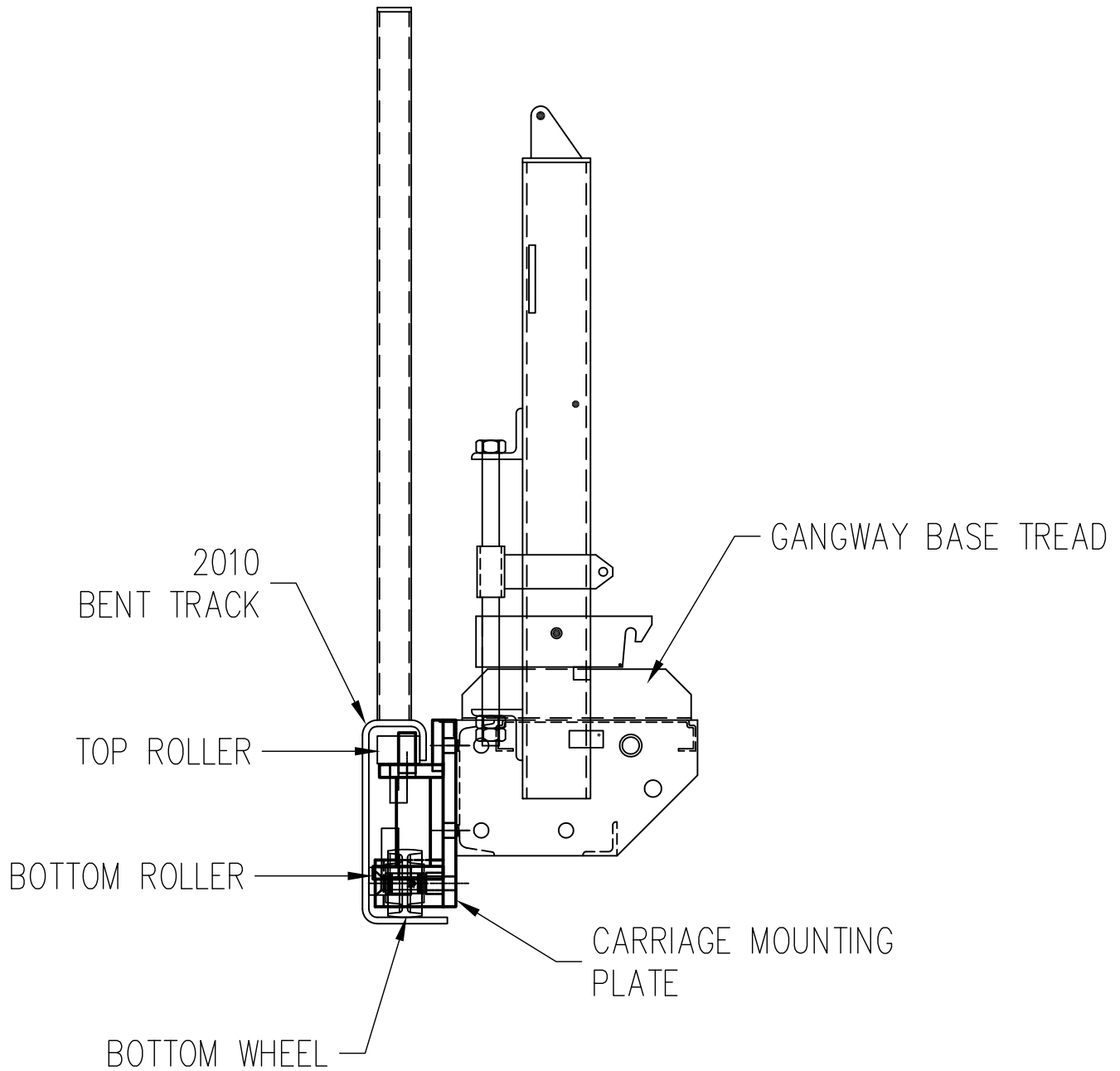
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CUSTOMER PURCHASE ORDER NUMBER			
ALCO ORDER #	SCALE NTS	SHEET 1 of 1	REV. 0
DRAWN DATE 5/19/10	CHECK DATE	FINAL CK. DATE	DRAWING NUMBER STD - PIVOT



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# TCG-TRACK & CARRIAGE



SOME COMPONENTS OMITTED FOR CLARITY

STOP ROD AT ENDS NOT SHOWN

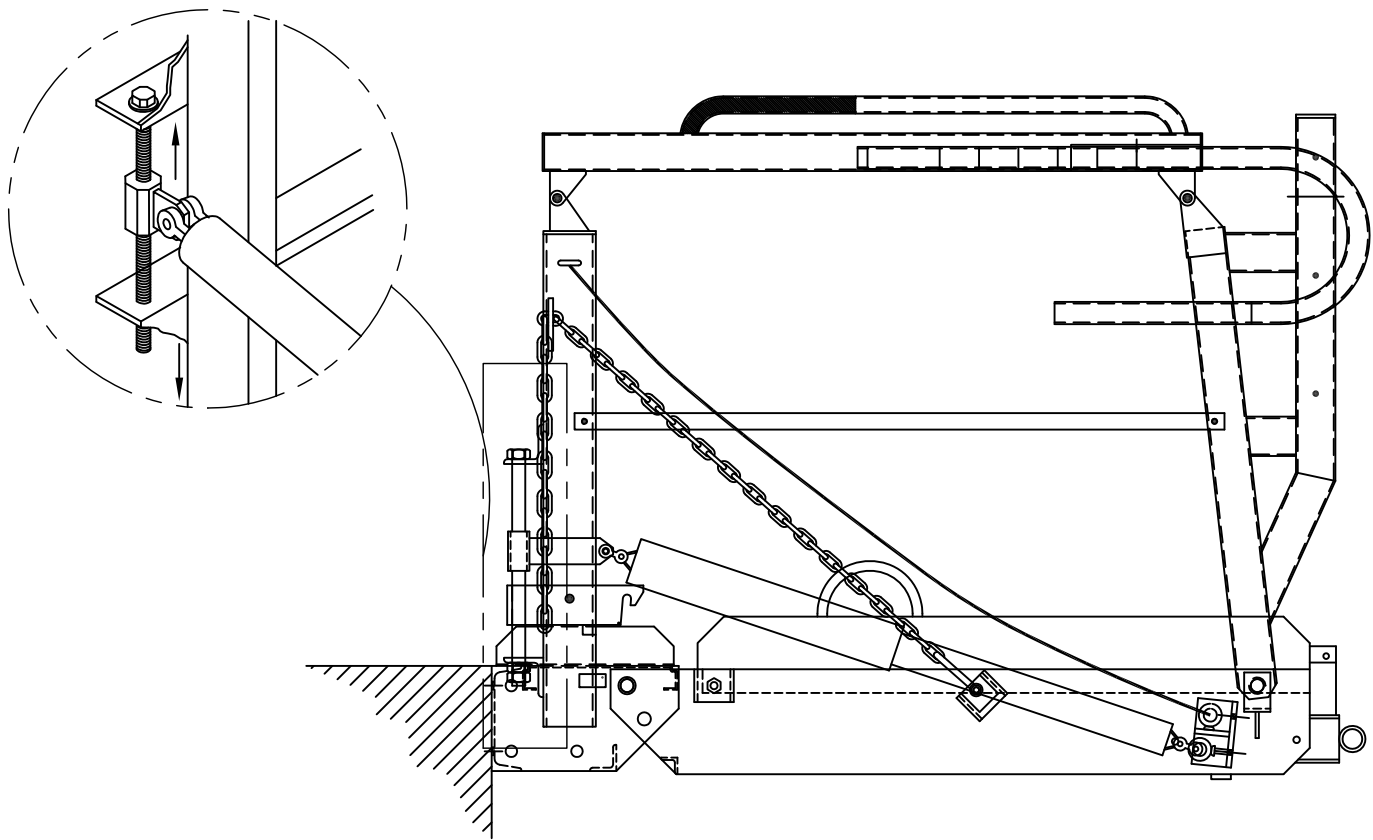
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CUSTOMER			
TITLE TRACK & CARRIAGE			
CUSTOMER PURCHASE ORDER NUMBER			
ALCO ORDER #	SCALE NTS	SHEET 1 of 1	REV. 0
DRAWN DATE 5/19/10	CHECK DATE	FINAL CK. DATE	DRAWING NUMBER STD - TRACK

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The spring may need to have the tension adjusted by stretching or relaxing the springs. This can be done by turning the bolt on the spring bracket clockwise or counter clockwise, so that the spacer ear can be raised or lowered to adjust the tension of the spring.

#### SPRING ADJUSTMENT

- 1) With the TCG in its stored position, adjust the ear up or down by turning the bolt on the spring bracket. (see symptoms & cures)
- 2) Make sure you turn the bolt. Do not turn the double jam nuts.
- 3) Spring replacement or removal that requires complete removal of the bolt for any reason.
  - A) With gangway in stored position, tie off gangway.
  - B) Relieve all tension on springs.
  - C) Pull pin from shackle.
  - D) Loosen jam nuts.
  - E) Remove the bolt.

This procedure is for spring, bolt & ear replacement.

**SYMPTOM:** Gangway has too much tension below horizontal, and not enough tension above horizontal.

**CURE:** Lower the spacer ear to increase tension above horizontal and decrease tension below horizontal.

**SYMPTOM:** Gangway has too much tension above horizontal, and not enough tension below horizontal.

**CURE:** Raise the spacer ear to decrease tension above horizontal and increase tension below horizontal.

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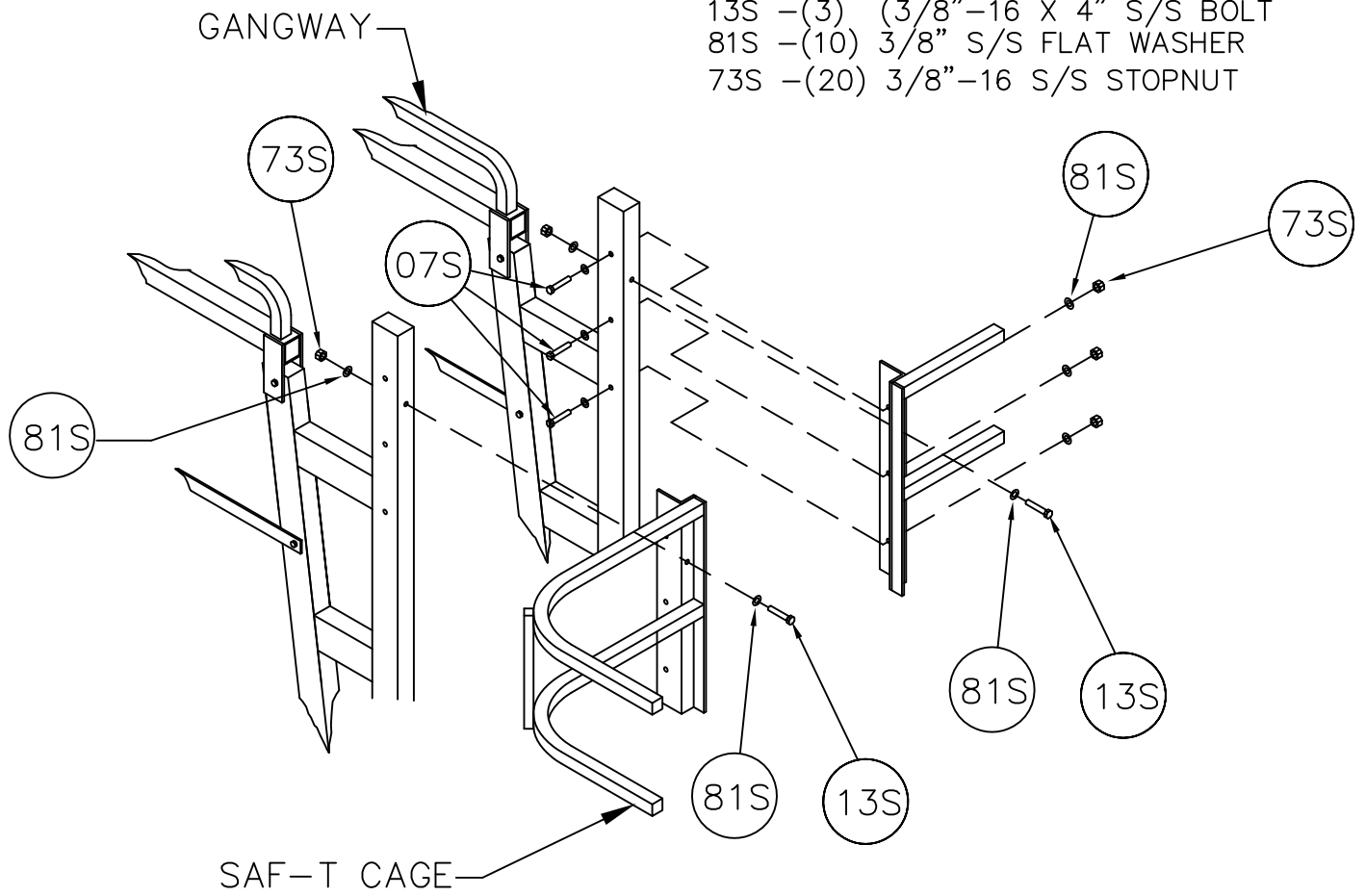
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TITLE TCG-2500 SPRING ADJUSTMENT			
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ALCO ORDER #	SCALE NTS	SHEET 1 of 1	REV.
DRAWN DATE 5/19/10	CHECK DATE	FINAL CK. DATE	DRAWING NUMBER TCG-2500-SPG



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**HARDWARE:**

- 07S -(7) 3/8"-16X 2 1/2" S/S BOLT
- 13S -(3) (3/8"-16 X 4" S/S BOLT
- 81S -(10) 3/8" S/S FLAT WASHER
- 73S -(20) 3/8"-16 S/S STOPNUT



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CUSTOMER			
TITLE TCG-1000 SPECIFICATIONS			
CUSTOMER PURCHASE ORDER NUMBER			
ALCO ORDER #	SCALE NTS	SHEET OF	REV.
DRAWN DATE 5/19/10	CHECK DATE	FINAL CK. DATE EHM 3/20/02	DRAWING NUMBER TCG-1000-CAGE



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## **TCG-S910 TRACK LOCK ADDENDUM**

### **INTRODUCTION**

This addendum is divided into five main sections: WARNINGS, PRODUCT DESCRIPTION, INSTALLATION, OPERATION, and MAINTENANCE.

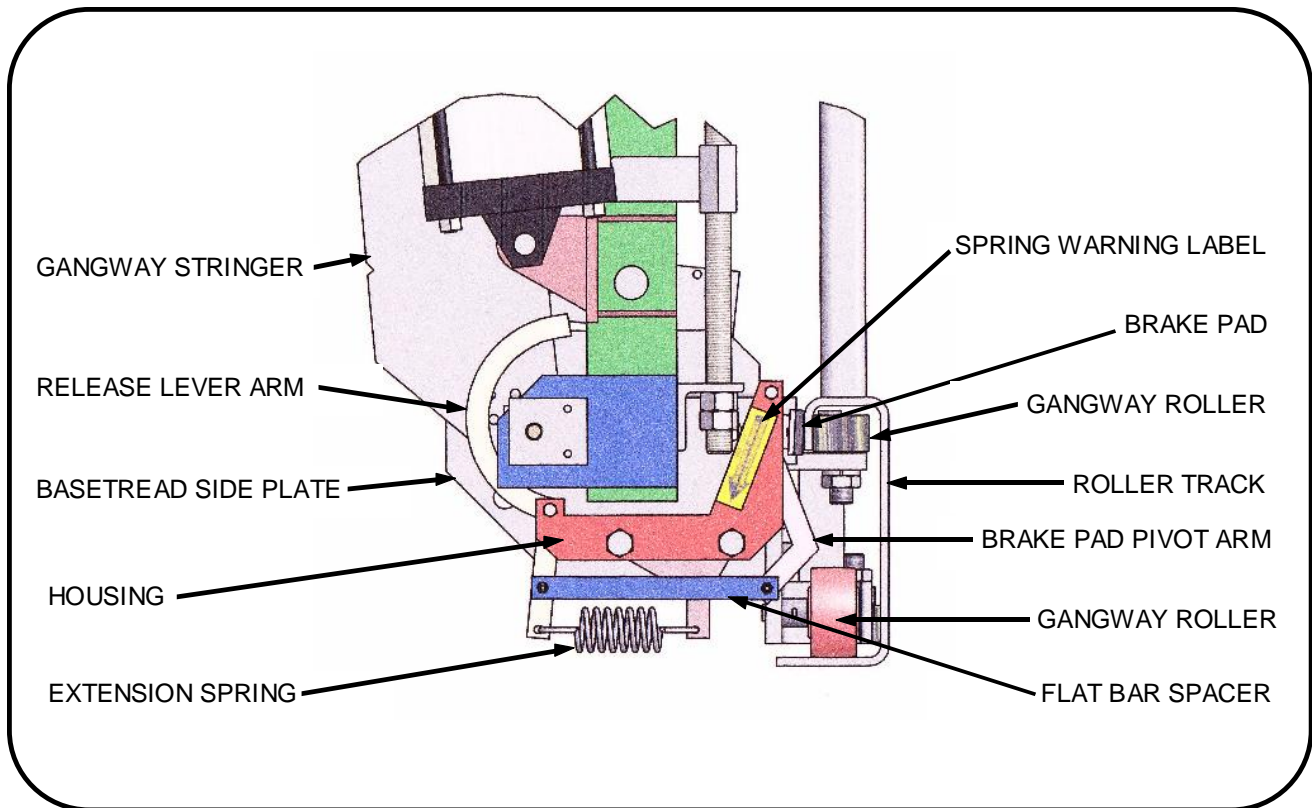
### **WARNINGS**

The following warnings are provided in label form for attachment to the equipment.

- DO NOT OPERATE GANGWAY IF SPRING IS BROKEN OR MISSING.
- THIS UNIT IS EQUIPPED WITH AN AUTOMATIC BRAKE TO PREVENT THE GANGWAY FROM TRACKING WHILE DEPLOYED.

### **PRODUCT DESCRIPTION**

See Figure 1 on the following page.



**FIGURE 1**

- The Track Lock mechanism is an assembly that contains a housing with a curved release lever arm on one end and a brake pad pivot arm on the opposite end. The two arms are sandwiched between and bolted to the side plates of the housing at the upper pivot point of each arm. Bolted between the arms below the housing is a pair of flat bar spacers that allow the arms to pivot together. Pinned between a bottom extension on each arm is an extension spring that changes the geometry of the top end of each arm as the spring is extended or released.
- The assembly bolts through existing holes in the side plate of the gangway base tread. The top of the curved release lever arm includes a bent leg that engages with the top edge of the gangway stringer as the gangway is raised to the stored position. The brake pad on the brake pad pivot arm engages with the outer surface of the track on which the gangway rolls.
- The outer surface of the track is to be coated with grit impregnated coating for improved friction characteristics. See Figure 2 in the Maintenance section on page 4 for surface to be coated.

- As the gangway body is raised to the stored position, the stringer engages the bent leg of the release lever arm which causes the spring to extend. As the spring extends, the brake pad pivot arm pivots which causes the brake pad to disengage from the track. With the gangway fully raised in the stored position, the brake pad is released from the track which allows the gangway to be manually tracked.
- Whenever the gangway is deployed in any position that is not stored, and the release lever arm is disengaged from the stringer, the spring causes the brake pad to press against the track, thereby preventing the gangway from tracking while deployed.

## INSTALLATION

- The procedure for installing a new TCG-S910 Track Lock mechanism as a retrofit on an existing tracking gangway system is identical to that described below in the Maintenance section of this addendum for the replacement of a Track Lock mechanism.

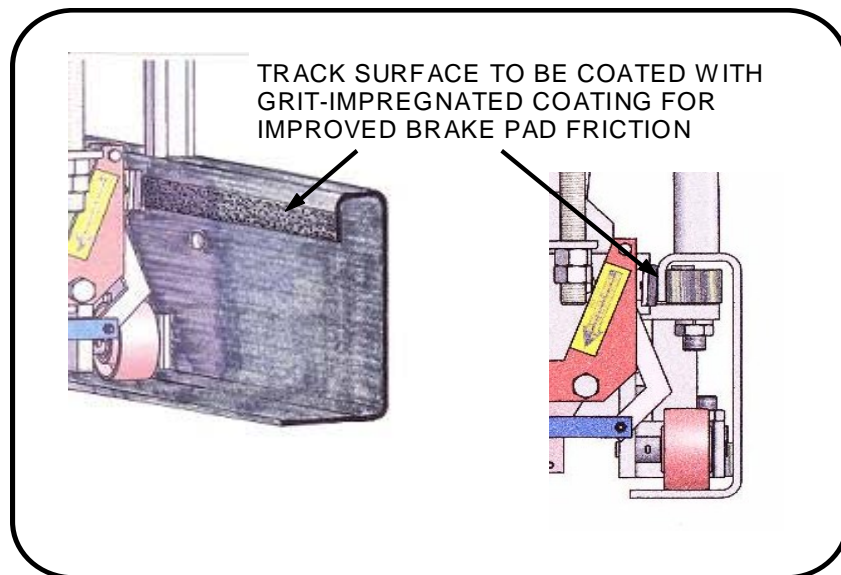
## OPERATION

- The operation of the Track Lock mechanism is automatic.
  1. With the gangway body locked in the upright stored position, manually roll the gangway to the desired working position.
  2. With the gangway in the desired working position along the track, deploy the gangway for operation. Once the gangway is released from the stored position, the brake lock pad will automatically engage the roller track which will prevent the gangway from tracking. **CAUTION: Do not attempt to roll the gangway along the track while it is deployed.**
  3. When finished with the operation, and with the gangway locked in the upright stored position, the gangway is free to be rolled along the track to any other desired position.
  4. **WARNING: If the spring is broken or missing from the Track Lock mechanism, do not operate the gangway.**

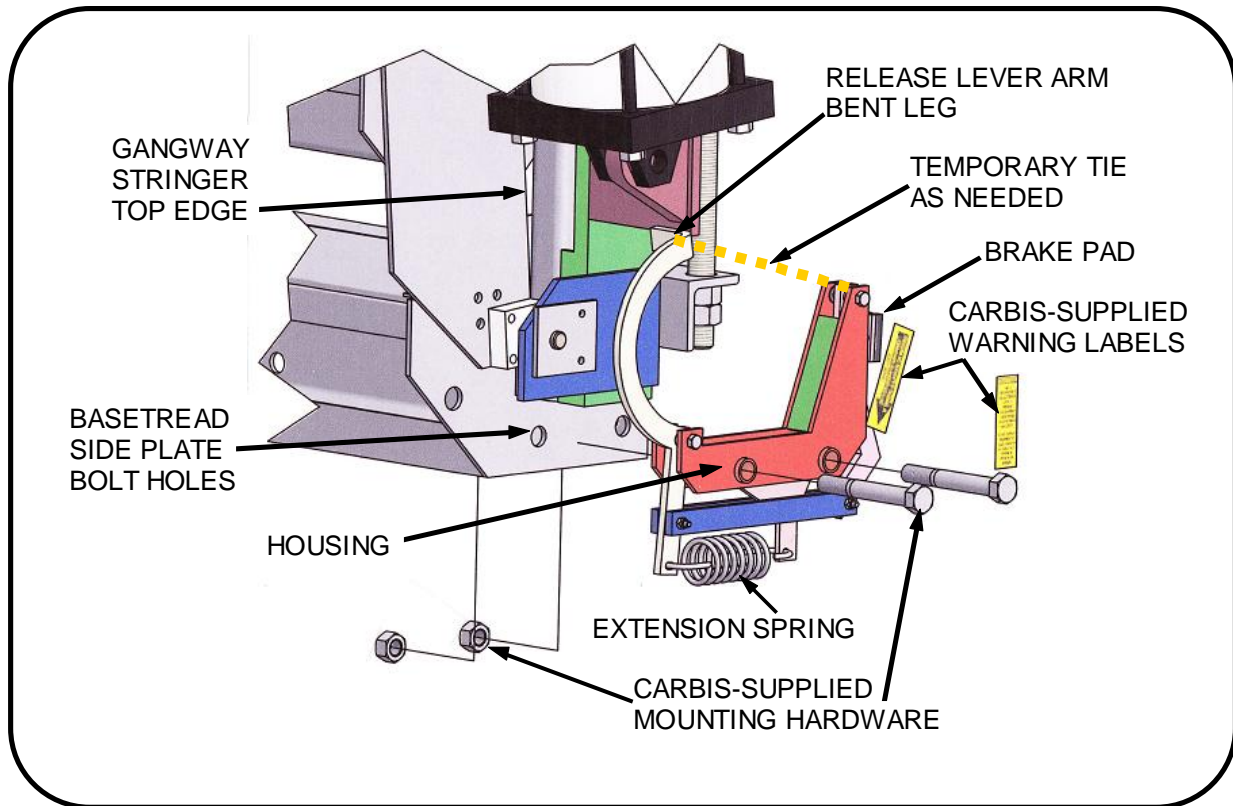
**If the Track Lock is not working, do not attempt to repair. Contact Carbis for assistance or replacement parts.**

## MAINTENANCE

- The following maintenance procedure applies to both the replacement of an existing TCG-S910 Track Lock mechanism or the new installation of the mechanism as a retrofit on an existing tracking gangway system.
- On retrofit installations, a gritted coating should be applied and allowed to fully cure prior to installation. On both retrofit and new installations, this coating should be reapplied as required to maintain optimum performance. See Figure 2 below for track surface to be coated.



**FIGURE 2**



**FIGURE 3**

- Using Figure 3 above as a guide, install the replacement/new Track Lock mechanism per the following steps.
  1. Make certain the gangway body is locked in the upright stored position.
  2. Manually pivot the curved release lever arm sufficient so that it will engage the top edge of the stringer on the stored gangway. If the lever arm is too tight to hold manually, temporarily tie the top bend of the arm to the pivot bolt of the brake pad using string or tape that is sufficiently strong to hold the arm in place.
  3. Position the Track Lock assembly so that the lever arm bent leg passes over the top edge of the stored gangway stringer as the bolt sleeves are aligned with the bolt holes on the base tread side plate.
  4. Using the Carbis-supplied hardware, bolt the assembly to the base tread side plate.

5. If the release lever arm was tied back, release the tie so that the bent leg of the release lever arm engages the top edge of the stringer.
6. With the gangway body in the raised stored position, check that the brake pad is free of the roller track and that the gangway will roll freely when manually pushed in either direction.
7. Check the brake pad function by lowering the gangway body from the stored position sufficient to completely disengage the release lever arm from the gangway stringer. At that point, the brake pad should be maximally engaged with the roller track to prevent the gangway from tracking. Apply sufficient push/pull pressure on the gangway to verify that the gangway remains in position without rolling in either direction.
8. Raise and lower the gangway to and from the stored position several times to confirm the consistency of the Track Lock mechanism function.
9. If the warning labels are missing or illegible, apply the Carbis-supplied labels. See Figure 3 on the previous page for label placement.
  - Apply the spring warning label (with the black arrow) to the carriage assembly.
  - Apply the second label to the lower portion of the left-hand upright of the gangway base tread.