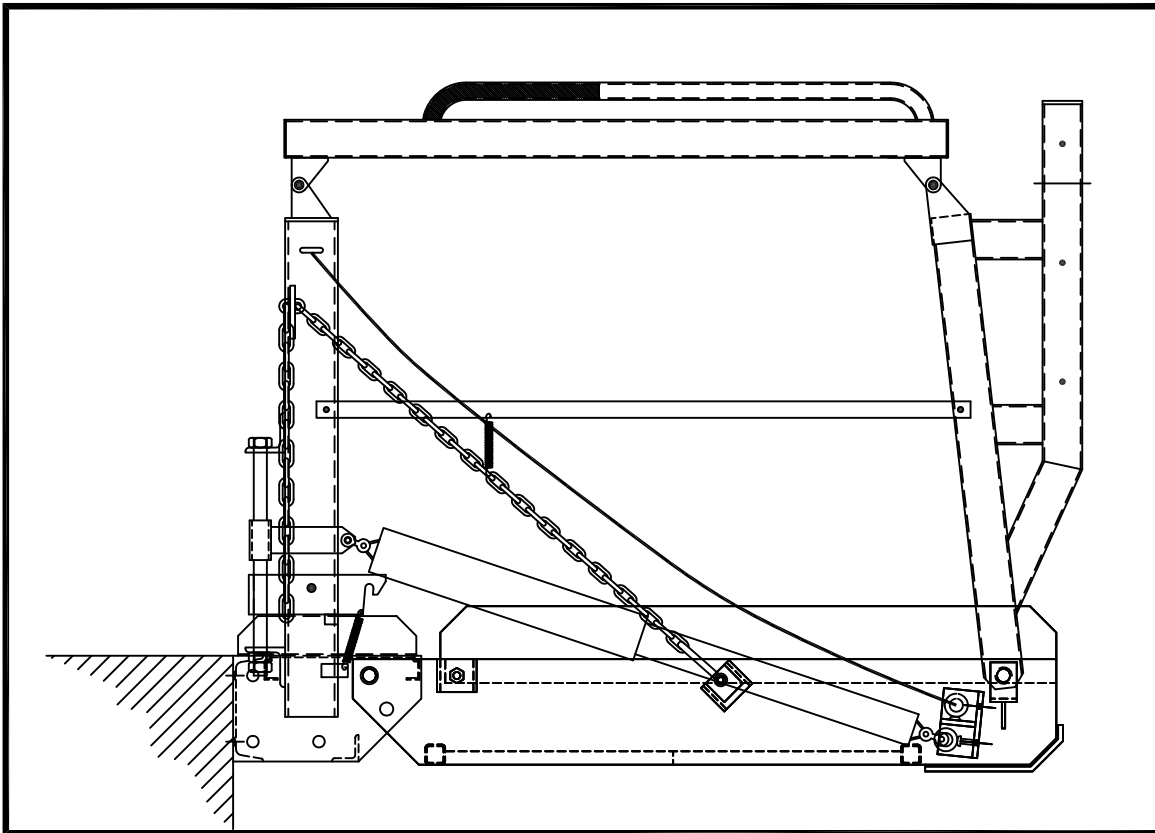


INSTRUCTION MANUAL OPERATION AND MAINTENANCE OF TCG-2000



CARBIS
INCORPORATED

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BEYOND

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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-2000 DESCRIPTION SEE DRAWING TCG-2000-STD

The TCG-2000 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.

- The articulating gangway stair stringers pivot about the base tread, and the handrails pivot about the base tread uprights.
- Bumpers are mounted on the bottom leading edge of the stringers for vehicle protection.
- 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 15 degrees above to 15 degrees below horizontal.
- 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 center.
- Brackets that are bolted or welded to a platform, either surface mounted or under slung below the platform structure, support the female pivot-mounting sleeve.
- 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.

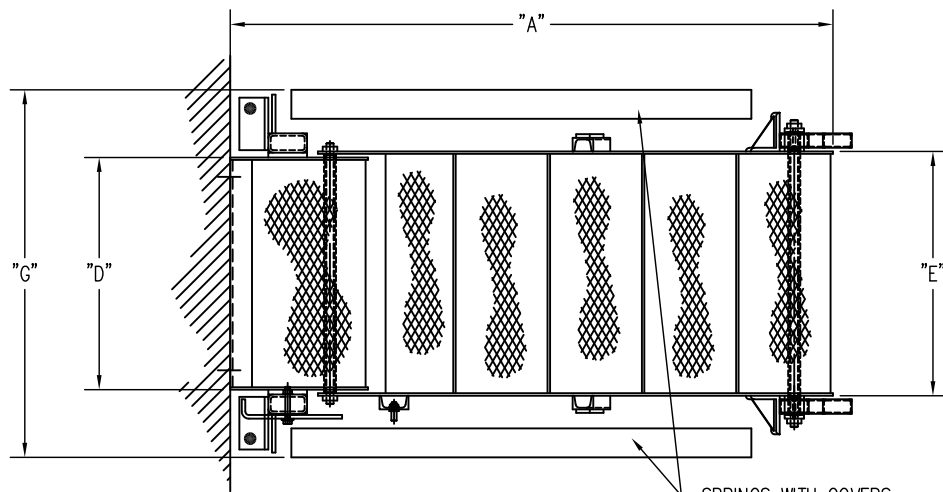
1. Spot the vehicle to be accessed with the work area directly in front of the gangway.
NOTE: For pivoted or track mounted gangways, pivot or roll the gangway to the desired position.
2. With the chain stops in the next to the last link, depress the foot lock pedal. This will release the gangway from 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-2000 is from 15 degrees above horizontal to 15 degrees below horizontal. The chain stop feature enables one man at a time to access vehicles without the unit having to rest on the vehicle.

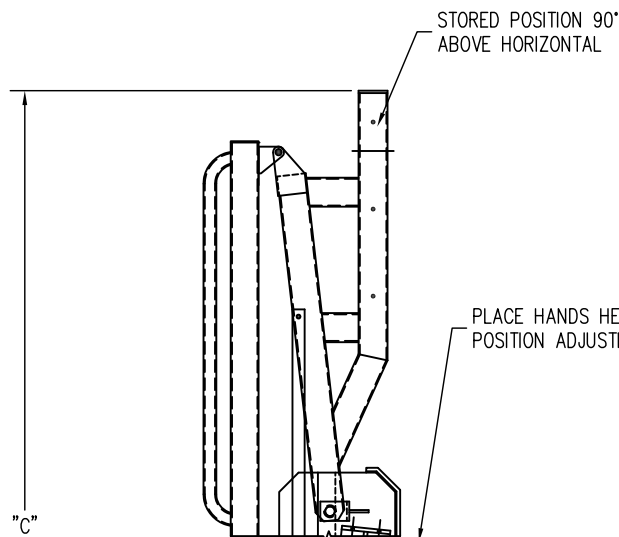
5. After performing the required work on the vehicle, use the pull up rope to return the gangway to its stored position. It is not necessary to depress the foot lock pedal when raising the gangway; however, make sure that the foot lock has engaged the bolt on the right side of the gangway.
6. Return 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.



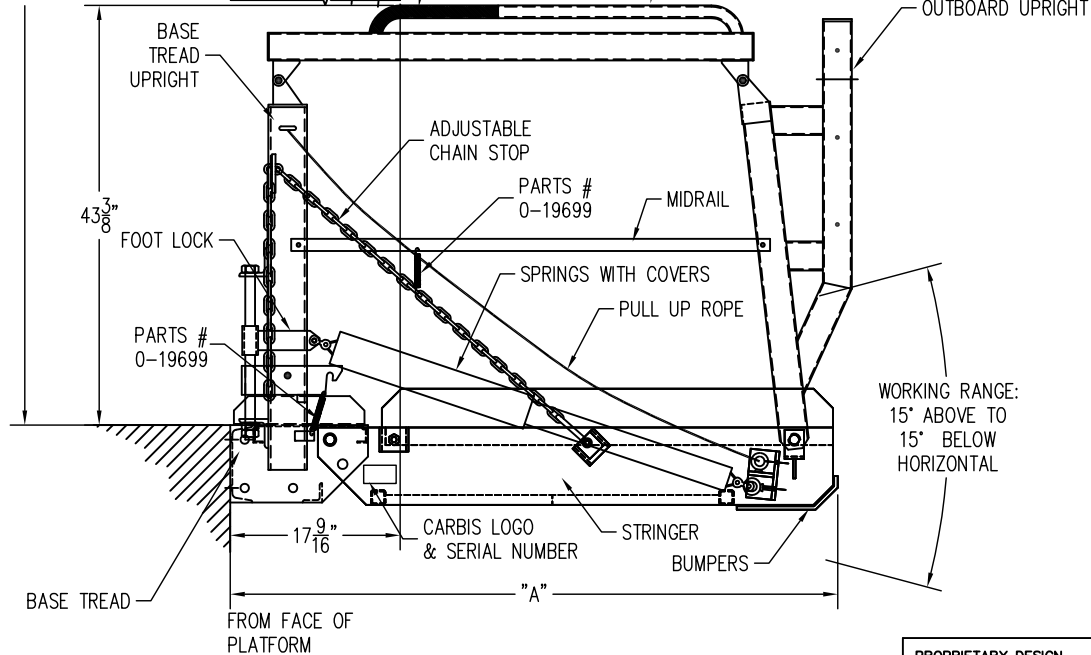
SPRINGS WITH COVERS



STORED POSITION 90°
ABOVE HORIZONTAL

PLACE HANDS HERE FOR
POSITION ADJUSTMENT

TOP HANDRAIL



NOTE:
SOME PARTS NOT SHOWN
COMPLETELY FOR CLARITY.

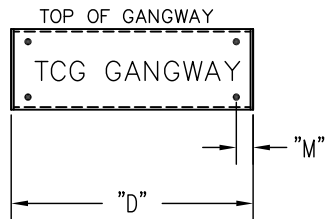
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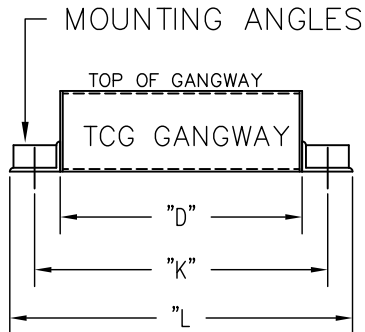
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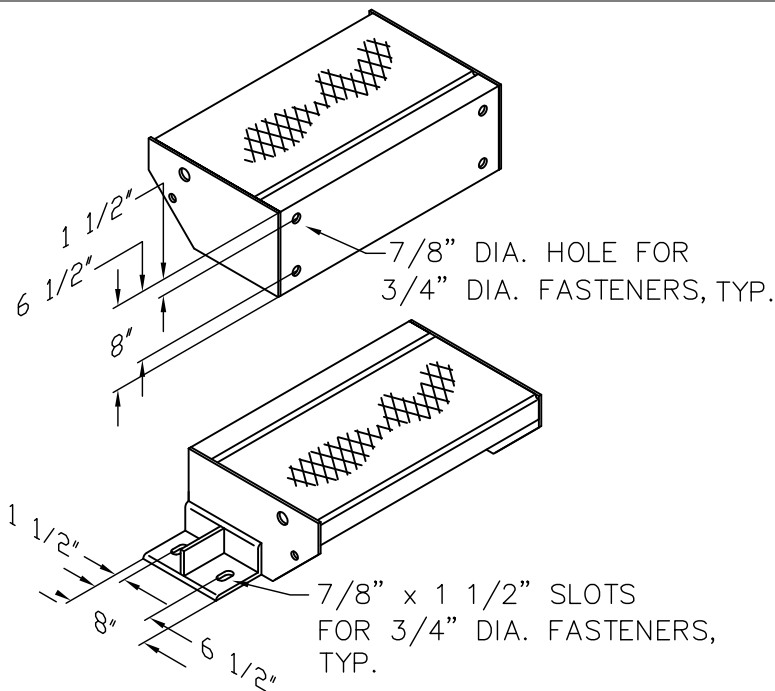
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VERTICAL MOUNT
(STANDARD)



OPTIONAL
HORIZONTAL MOUNT

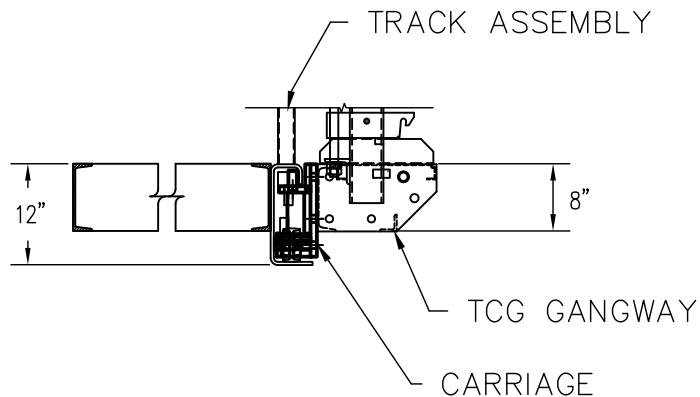


MODEL NUMBER	WIDTHS											
	-A				-AN				-WA			
	D	K	L	M	D	K	L	M	D	K	L	M
TCG-1000	24"	31"	34"	2"	18 1/4"	25 1/4"	28 1/4"	2"	44"	51"	54"	3 1/4"
TCG-2000	24"	31"	34"	2"	18 1/4"	25 1/4"	28 1/4"	2"	44"	51"	54"	3 1/4"
TCG-2500	24"	31"	34"	2"	18 1/4"	25 1/4"	28 1/4"	2"	44"	51"	54"	3 1/4"

MATERIAL CHART

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

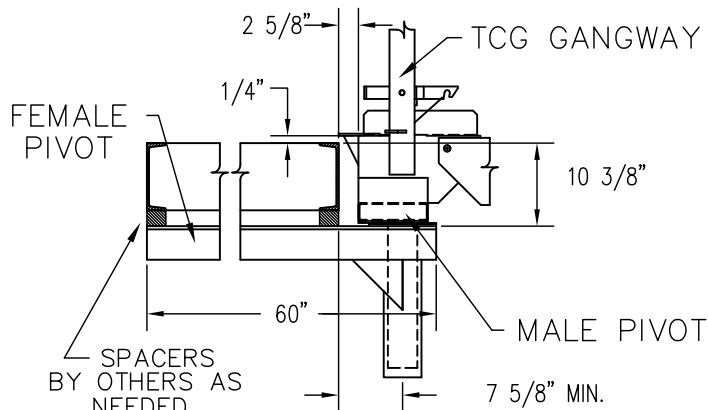
NOTE: THE "A" IN THE WIDTH COLUMN DETERMINES THE MATERIAL OF THE GANGWAY. THE "A" MAY BE CHANGED TO "P", "G", OR "S", DEPENDING ON THE MATERIAL REQUIRED. SEE MATERIAL CHART FOR SYMBOLS.



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.

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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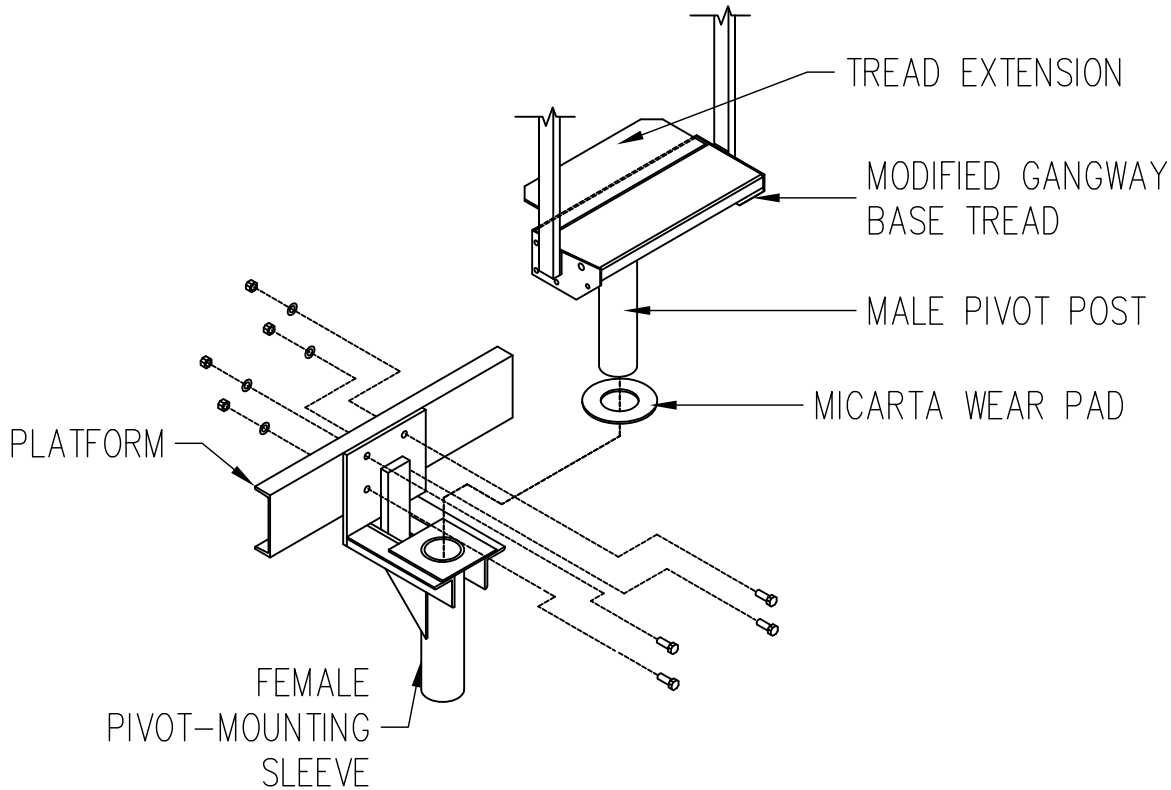
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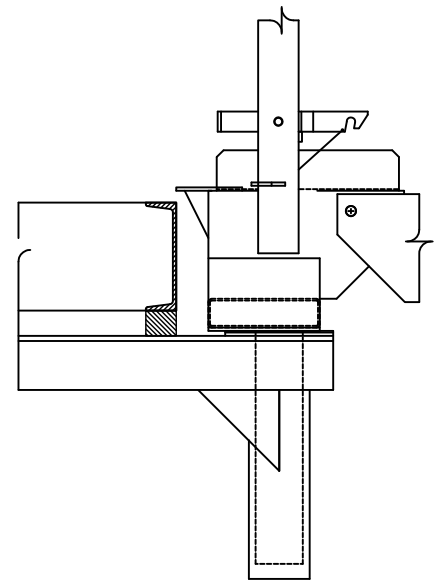


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TCG-PIVOT MOUNT



FACE MOUNT



UNDERSLUNG MOUNT

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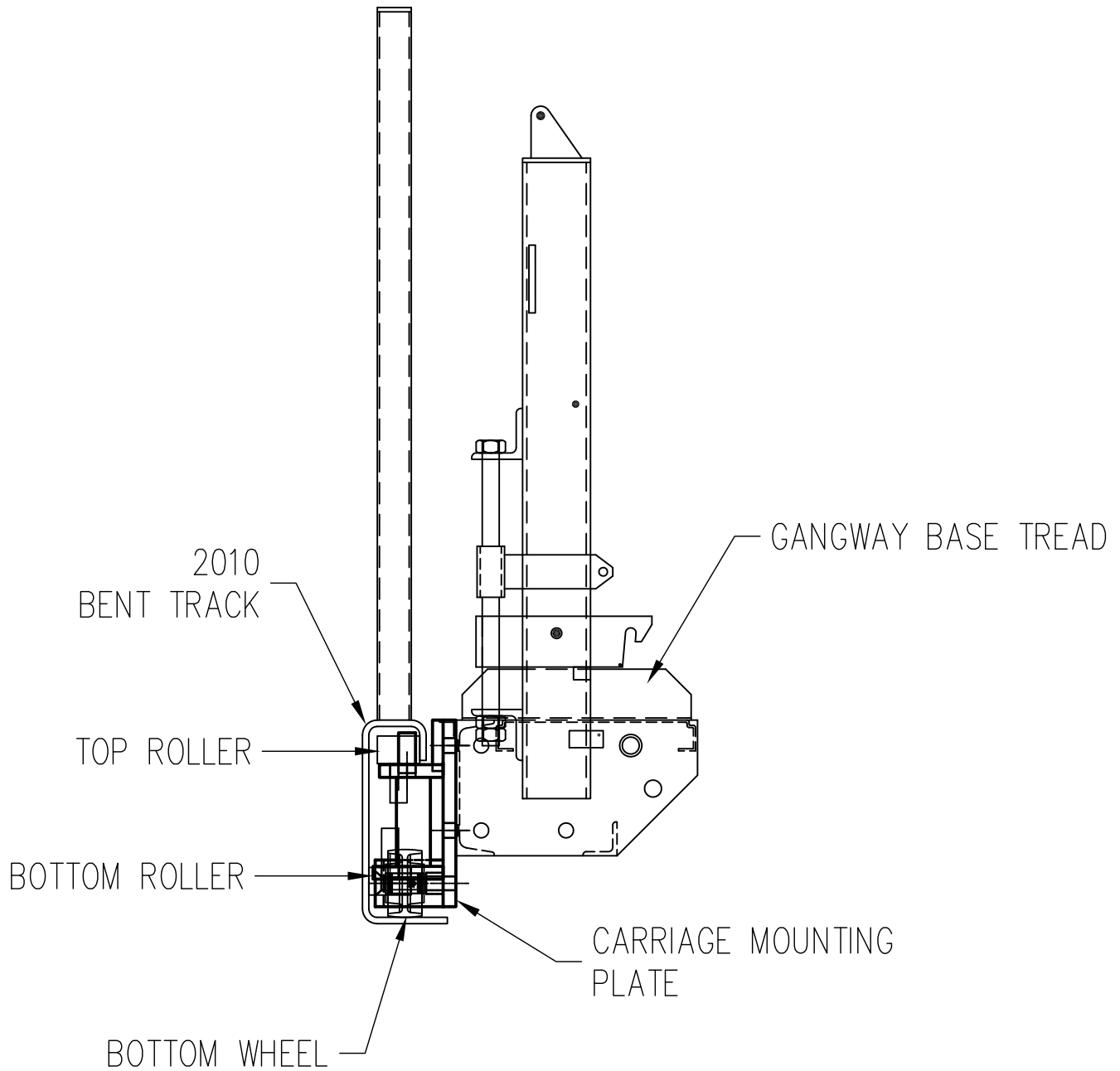
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TCG-TRACK & CARRIAGE



SOME COMPONENTS OMITTED FOR CLARITY

STOP ROD AT ENDS NOT SHOWN

PROPRIETARY DESIGN

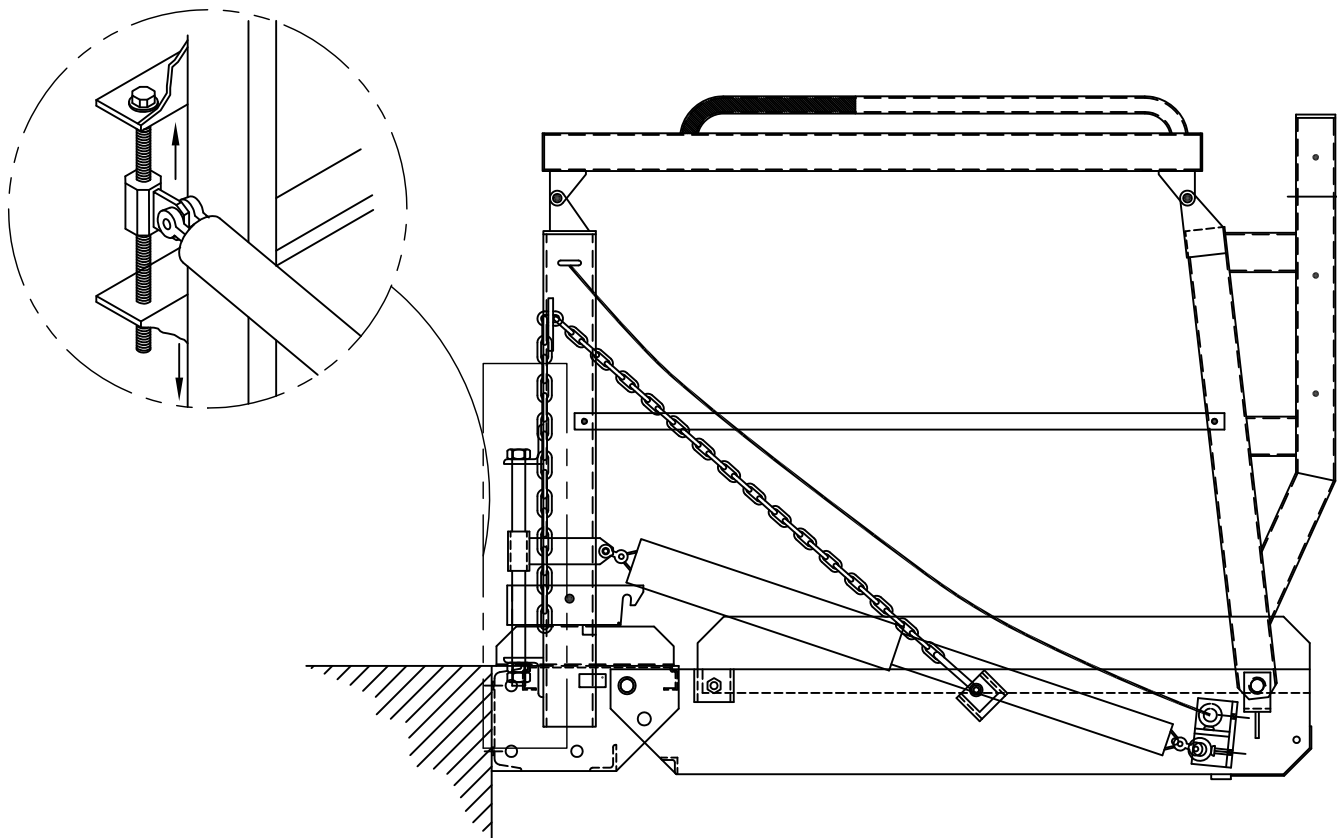
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The spring may need to have the tension adjusted by stretching or relaxing the springs. This can be done by turning the bolt on the spring bracket clockwise or counter clockwise, so that the spacer ear can be raised or lowered to adjust the tension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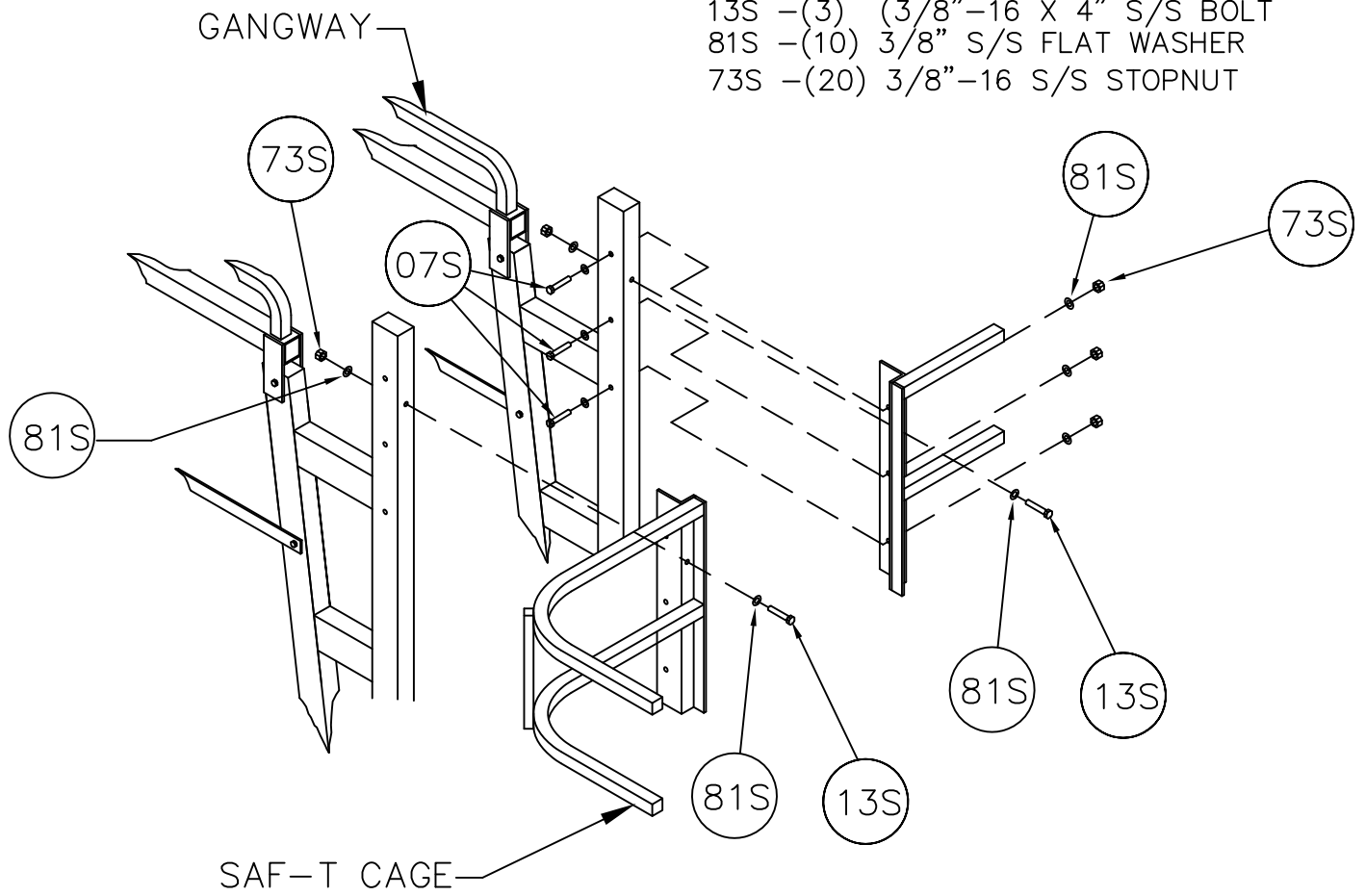
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HARDWARE:

- 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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